

Michael Lebby



EDUCATION:

2004, Doctor of Engineering (D. Eng.)
University of Bradford, United Kingdom
Citation, “*Technical Contributions to Optoelectronics*”
(NB: This is a higher doctorate awarded on technical contribution to the field)

1987, Ph.D.
University of Bradford, United Kingdom
Thesis, “*Characterization and Fabrication of the HFET and BICFET*”

1985, MBA
University of Bradford, United Kingdom
Thesis, “*Small Business Planning for a Start-up*”

1984, Bachelors (B. Eng. – Honours)
University of Bradford, United Kingdom
Thesis, “*Computer Aided Testing of Semiconductor Devices*”

SUMMARY OF TECHNICAL EXPERTISE:

Industry roles (majority of career): Dr. Lebby has founded and led a number of companies in various positions including CEO and CTO (Ignis Optics, Oculi, One Chip Photonics, OIDA, Translucent Photonics).

Dr. Lebby is currently CEO of a public company (Lightwave Logic Inc. NASDAQ:LWLG). As CEO, Dr. Lebby took LWLG from an OTCQX company to up-list on NASDAQ, organically, without raising financing (which is extremely rare), on 1st September 2021. Subsequently, Dr. Lebby was invited to close the NASDAQ stock market on 10th September 2021. The event was carried on Fox, CNBC, Bloomberg, and BNN networks.

Academia role (minor part of career): Dr. Lebby has been a full professor (part-time) in optoelectronics at Glyndŵr University, Wales, UK (2013-15). Dr. Lebby has over 60 publications and has a google scholar h-index = 46 (which includes issued patents and published patent applications), i10-index = 165, with over 8400 citations.

Key professional bodies: Dr. Lebby is a Fellow of the National Academy of Inventors (NAI), the IEEE (Institute of Electrical and Electronic Engineers), and the OSA (Optical Society of America).

Dr. Lebby started work in telecommunications and has generated over 40 years of experience in a number of technical disciplines and technologies. Dr. Lebby is well versed in electronics, semiconductor physics, optoelectronics, optics, materials, electrical engineering in general. Dr. Lebby has experience in commercial and industrial research of technologies such as silicon, compound semiconductors, manufacturing, fabrication, design, simulation, testing, evaluation, reliability, qualification of new ideas, concepts and products.

Dr. Lebby is co-inventor of the world's first 'oxide VCSEL' (this is a type of semiconductor laser) that is now being utilized for consumer applications (*Face ID of Apple's iPhone as an example, laser mice for PCs as another example*). US Patent #5359618 “High Efficiency VCSEL and Method of Fabrication” issued 25th October 1994. Estimated commercial volumes of this semiconductor device exceed many billions of units.

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Dr. Lebby has over 230 issued utility patents with the USPTO in subjects such as electronics, optoelectronics, photonics, packaging, transceiver modules, optical sub-assemblies, materials, epitaxial growth, device design, assembly, and various active and passive components (both electronic and optoelectronic). Dr. Lebby regularly receives invites to speak at technical conferences. Dr. Lebby has appeared in panels and interviews many times. Dr. Lebby is currently chairman of the International PIC conference based in Europe (for the past 5 years since its conception in 2015). Dr. Lebby is inventor or co-inventor of ~230 issued USPTO utility patents (or over 450 if international derivatives are included), as well as over 80 published patent applications.

Dr. Lebby has participated in over 120 patent litigation cases as a technical expert witness, including over 10 trials and over 40 depositions. Dr. Lebby has authored numerous expert reports and is familiar with State (District), Federal (ITC) and PTAB-IPR court processes for expert witness testimony. Dr. Lebby has been cited in patent litigation case history (ITC investigation in the matter of: Certain Active Optical Cables and Products Containing the Same (ITC Inv #337-TA-1233)). See details below in Expert Witness Experience.

The types of products that Dr. Lebby understands and include, but are not limited to; Light Emitting Diodes (LEDs), Laser Diodes (LDs), photodetectors (PDs), optical waveguides, fiber optics, displays (LCD, LED, OLED), plastic photonics, optical polymers, sensors, LIDAR, solar cells, lighting, data communication, CMOS, and even new opportunities such as medical and life science applications for photonics. Dr. Lebby is internationally known for his work with integrated photonics, PICs (Photonic Integrated Circuits), silicon photonics, and semiconductor technologies such as InP, GaAs, III-GaN, silicon, as well as SiGe and silicon ICs (MOSFETs, FinFETs, bipolar), power FETs, RF FETs, various display technologies such as LCD, OLED, LED, as well as micro-fluidics and nanostructures/wires etc. Dr. Lebby has worked with DC current as well as AC current, high frequency design, microwave design, and multi-wavelength, visible wavelengths, in addition to 850nm/1310nm/1500nm/NIR fiber optic communications. Dr. Lebby has worked extensively in fiber optics which includes Fiber based systems, chassis', trays, modules, adapters, splice devices, connectors, transceivers, packaging as well as architecture and optical communication standards/protocols.

Dr. Lebby is currently CEO of a public company (Lightwave Logic Inc. NASDAQ:LWLG). As CEO, Dr. Lebby took LWLG from an OTCQX company to up-list on NASDAQ, organically, without raising financing (which is extremely rare). LWLG was listed on NASDAQ 1st September 2021, and Dr. Lebby was invited to close the NASDAQ stock market on 10th September 2021. The event was carried on Fox, CNBC, Bloomberg, and BNN networks.

BIOGRAPHY:

Biography: Michael S. Lebby joined Lightwave Logic as a member of the Board of Directors in 2015. In May 2018, Dr. Lebby assumed the role of CEO, Lightwave Logic Inc (NASDAQ:LWLG). Lightwave Logic is a leading technological company commercializing Electro-Optical polymers and successfully up-listed the company to NASDAQ on 1st September, 2021. Dr. Lebby was invited to close the NASDAQ stock market on 10th September 2021. The event was carried on Fox, CNBC, Bloomberg, BNN networks.

Dr. Lebby (born 1961, London, UK) is an Anglo-American entrepreneur and intrapreneur in the fields of optoelectronics/photonics electronics and semiconductors. Dr. Lebby's career started with the British Government in 1977 in telecommunications and he did research at their research labs (RSRE Malvern) in the early 1980s. Dr. Lebby worked at AT&T's research labs: Bell Labs (1985-1989) in photonics, and subsequently drove the development (and co-authored the first patent) of the oxide VCSEL diode laser at Motorola in the 1990s (which is now used in laser mice, 3D structured light sensing/FaceID in mobile phones, optical interconnects; where volumes of the laser are over 1B units today). From 2005-2010 he led the USA trade association in optoelectronics (OIDA) and represented the optoelectronics and photonics industry on Capitol Hill.

Dr. Lebby has led and run technical start-ups and commercialized optoelectronic and photonics technology into volume manufacturing. Dr. Lebby has also had roles as a Venture Capitalist specializing in Optical Communications. He is currently a technical expert to the European Commission. He is a Fellow member of NAI (National Academy of Inventors), IEEE, and OSA, and has been voted PIC (Photonic Integrated Circuit) business leader of the year by the PIC International Conference in 2018.

Dr. Lebby holds over 450 issued international patents in photonics and electronics, that have been derived from over 230 issued USPTO utility patents, mostly in the field of optoelectronics, photonics and semiconductors. He has been cited by the USPTO to be in the most prolific 75 inventors in USA from 1988-1997.

Dr. Lebby is passionate about photonics and has focused his efforts over the last 30 years to drive new photonics manufacturing programs in USA and Europe as well as industry-based photonics technology roadmaps.

Dr. Lebby is also passionate about optics and philately, and has been elected to both the London Guild of Spectacle Makers as well as the Royal Philatelic Society London.

WORK HISTORY:

2003 – Present **Oculi LLC, CEO and CTO** (*part-time consulting*)

Oculi LLC provides consulting in expert witness, trial, deposition, expert reports, infringement, invalidity, and various patent and IP litigation in photonics, optoelectronics, semiconductors, and fiber optic telecommunication technology segments. Engaged patent agencies have included: IMS Expert Services, Thomson Reuters Expert Witness Services (now Round Table Group), LitXpert Expert Witness Group, Teklicon Expert Witness Agency, Beche Expert Services Group, Forensis Group: Expert Witness Services, and Expertconnect.

2015 – Present **Lightwave Logic (NASDAQ:LWLG), CEO & Director, Board of Directors**

In 2015 Dr. Lebby became a director of Lightwave Logic to assist in the company for competitive optical modulator products and associated packaging, manufacturing, and technology roadmaps/marketing. In May 2017, Dr. Lebby became CEO of Lightwave Logic. On 1st September 2021, Dr. Lebby successfully guided Lightwave Logic to up-list to NASDAQ, and was invited to ring the closing bell on 10th September 2021.

2014 – 2016 **University Southern California, Director CFR** (*Corporate & Foundation Relations*)

Dr. Lebby assisted USC Viterbi Engineering to foster tighter faculty-industry relationships in high technology, IT, social media, graphic arts, electronics, photonics (solar, display, medical) and fiber communications segments.

2013 – Present **European Commission, Technical Expert**

In 2013 Dr. Lebby became a technical expert for the Photonics Unit of the European Commission. Dr. Lebby has participated in organizing workshops, lectures, evaluating photonics proposals, and advising the Commission on funded projects. Dr. Lebby currently is an advisor on 6 photonics pilot lines (MIRPHAB, PI-SCALE, PIX4LIFE, PIXAPP, InPULSE, Phabulous) and photonics based cardiovascular disease programs (CARDIS and InSide). Work includes displays, LEDs, lighting, OLEDs, micro-optics, InP/Silicon photonics, near infra-red technologies, fiber optics, sensing, medical photonics, and medical imaging etc.

2013 – 2015 **OneChip Photonics Corporation, President and CEO**

In 2008 Dr. Lebby was elected independent board member for One Chip Photonics Inc. He was elected CEO in 2013. One Chip Photonics focused on technical and business operational strategy for communications based InP Photonic Integrated Circuit (PIC) and optoelectronic Integrated Circuit (OEIC) platforms.

2013 – 2015 **Glyndŵr University, Professor, Chair of Optoelectronics**

In 2013 Dr. Lebby became full Professor of Optoelectronics (part-time) to assist Glyndwr University to position itself as a leader in optoelectronics and photonics. Areas of focus include design, simulation, and testing of photonic integrated circuits (PICs) and optoelectronics integrated circuits (OEICs), laser diodes, displays, optics, and solar cells.

2010 – 2013 **Translucent, Inc., GM and CTO**

Dr. Lebby positioned Translucent on the product development and manufacture of epitaxial semiconductor wafers for the solar, power and lighting industries. Dr. Lebby led the R&D and development of MBE based rare earth oxide single crystal epitaxial layers deposited onto large silicon wafers. On top of these wafers both

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MBE and MOCVD Gallium Nitride epitaxial device layers were grown for devices. The use of GaN-on-Si is expected to be a strong catalyst for change in the power electronics and LED lighting industries. In a parallel program at Translucent, Dr. Lebby led the development efforts to develop and productize Germanium-Tin (GeSn) template wafers onto large format silicon wafers (Ge-on-Si) to enable cost effective, and ultra-high efficiency multi-junction solar cells for the CPV industry. Areas of advanced interconnect using new and novel material compounds were explored.

2005 – 2010 **OIDA** (Optoelectronic Industry Development Association), *Executive Director, President, and CEO (Board Member)*

Dr. Lebby represented the optoelectronics industry and organized technical conferences/workshops/forecasts with industry roadmaps. Initiated green photonics metrics. Dr. Lebby positioned OIDA as a national resource in the field of optoelectronics and has represented industry in many capacities ranging from talks, papers, expert witness, testimony, market and technical reports. Dr. Lebby created *new industry-based initiatives* in fiber optics broadband as well as the green photonics movement (solar technologies, displays, LED lighting technologies) that is now occurring globally.

2003 – 2005 **OCLARO**, *VP Technology and Business Development*

Telecommunication optoelectronic components, San Jose, Ca. Focus on technology strategy for components and sub-systems.

2001 – 2003 **Ignis Optics**, *President and CEO (Founder/Board Member)*

Venture-backed start-up, San Jose, California manufacturing 10Gbps fiber optic transceivers.

1999 – 2001 **Intel Capital**, *Director Business Development/Investor (w/Board observer positions on Investment)*

Intel Capital, Santa Clara, California. In 1999, Dr. Lebby joined Intel as a corporate investor and was responsible for sourcing, negotiating, and closing private placement equity deals in the optical networking, component, display, projection technologies, LED lighting, and semiconductor arenas.

1998 – 1999 **TE Connectivity**, *Director Technology/BD (Fiber Optics)*

Global Optoelectronics Division: Technology strategy for optical communications products.

1989 – 1998 **Motorola**, *R&D Manager*

Corporate R&D Labs, Tempe, Arizona. Optoelectronics: VCSEL based product solutions (OPTOBUS); materials, devices, packaging, systems. Other technologies included displays, field emission, LED, LCD, OLED, virtual/micro and projection. Dr. Lebby was also the lead inventor in Motorola's history with over 150 issued utility patents. Dr. Lebby worked in the silicon and compound semiconductor fabrication plants (fabs) to become proficient in deposition/etching/alignment tooling as well as design and simulation.

1985 – 1989 **AT&T**, *Researcher*

AT&T Bell Labs - Photonics Research Dept (Dept 11366), Holmdel, NJ. Dr. Lebby designed and fabricated new GaAs and InP optoelectronic devices that were grown both by MOCVD and MBE for projects that included optical computing and fiber optic communications.

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1977 – 1984

UK Ministry of Defense, Apprenticeship/Journeyman + Electronics Engineer (REME – Royal Electrical and Mechanical Engineers, and RSRE – Royal Signals and Radar Establishment)

Dr. Lebby started his career at the Royal Electrical and Mechanical Engineer (REME) division of the Ministry of Defence in the UK. Lebby was a telecommunications apprentice, and repaired all types of radio/RF communications equipment. Lebby qualified as a fully qualified Journeyman or Apprentice specializing in telecommunications in 1980. Dr. Lebby moved to the Royal Signal and Radar Establishment (RSRE) to study material and characterization issues of GaAs and InP devices.

SELECTED PROFESSIONAL ACTIVITIES & AWARDS:

- Invited to ring the closing bell of NASDAQ (with associated TV interviews) on 10th September, 2021
- Elected Fellow of the **National Academy of Inventors (NAI)** in 2020.
- Voted winner at the PIC Conference (Photonic Integrated Circuits) as **PIC Entrepreneur and Business Leader of the Year** (March 2018).
- Dr. Lebby is **co-inventor of the oxide VCSEL** (semiconductor laser) that is now being utilized for consumer applications (*Face ID of Apple's iPhone as an example*). US Patent #5359618 "High Efficiency VCSEL and Method of Fabrication" issued 25th October 1994.
- Dr. Lebby was recognized professionally as a **Fellow of IEEE (2005) and OSA (2007)** with his technical contributions to the field of optoelectronics.
- Dr. Lebby is a member of the Fellows review committee of IEEE.
- As an inventor Dr. Lebby has achieved **>230 issued utility patents with the USPTO**.
- As an inventor Dr. Lebby has ~80 published utility patent applications with the USPTO
- As an inventor Dr. Lebby has over 450 issued patents world-wide if international derivatives are counted.
- Dr. Lebby's novel laser-based device, packaging, modules designs led Motorola to sell their patent portfolio independently where a number of the patents have "very high licensing coefficients." Dr. Lebby was given a special award from the Chairman of Motorola for exemplary patent invention accomplishments in 1998 and **#1 prolific inventor in Motorola's history**.
- **Over 60 publications** (www.linkedin.com/in/lebby)
- **Over 250 public media activities** (that include: Books, Chapters, Reports, Abstracts, Videos, Lectures, Speeches, Reviews, Courses, Talks, Invited Talks, Keynote Talks, Plenary Talks, Webinars, Interviews, Articles, etc.). See at www.linkedin.com/in/lebby
- Author of OIDA's **annual market optoelectronics report** and forecast (2009 version is over 600 pages), which receives international exposure and recognition. Regularly interacts with government agencies in Washington DC on photonics-based projects (DARPA, ARPA-E, NIH, NSF, DOE, NIST, DoD etc.). Typical chapters included: LEDs, laser diodes, fiber optic communications, sensors, displays, solar, green photonics, military photonics, and applications of photonics such as solid-state lighting, automotive, medical, etc.
- Is the recipient of a **2nd doctorate** (higher) from Bradford University, UK, and only the second in the universities history to receive a D.Eng from industry (rest being academia).
- **Entrepreneur** at: (i) Motorola: Co-founded Optobus division – VCSEL laser based parallel optical interconnect solution, and (ii) Intel: Co-founded the Intel optics division for silicon photonics where over \$300M was initially invested for the division.
- **Entrepreneur**: Founded (and CEO) Ignis Optics Inc., a venture backed company (>\$30M) that designed and manufactured 10Gbps fiber optic transceivers. Sold the company to Bookham (NASDAQ: BKH) in 2003. Restructured OneChip Photonics (as CEO) through bankruptcy, and new VC-based funding. Assisted in the raising of >\$50M VC funding as a member of BoD. Founded Oculi LLC and Obsidian Motors LLC.
- IEEE CPMT **Board of Governors** ('98- '02); IEEE Phoenix Waves and Devices Junior Engineer of the Year (1993); CPMT Distinguished lecturer (2000), CPMT technical committee (TC-10 & ECTC) 1991 to 2011
- Advised at **Board of Director** level for a number of technical start-ups
- **Chartered Engineer** (C.Eng) from IEE (UK). The chartered engineering status is equivalent to the US PE (professional engineer)

EXPERT WITNESS EXPERIENCE

Summary:

Depositions (total-to-date) = 46

Trial/Hearing/Court appearances = 17 (with IPR/PTAB 'paper trial', this total increases to 21)

Cited patent litigation case history: In essence, the following case history means that the expert doesn't have to disclose every minute detail in his expert report. He is allowed to disclose theories in the report and expand on them in his witness statement.

See also In The Matter Of Certain Light-Emitting Diode Products, Systems, And Components Thereof, Inv. No. 337-TA-1168, Order No. 34, 2020 WL 1026335 (Feb. 14, 2020) (denying motion *in limine* to preclude testimony where: "[t]he invalidity theories at issue were previously disclosed at least in Dr. Lebby's expert report, and LSG had the opportunity to test these theories at Dr. Lebby's deposition.")

See case # 81 below

Patent litigation cases engaged:

1. Active case work: 1Q2009 (March 24th 2009); *Testimony: US-China Economic and security review commission on the optoelectronics industry. US Congress, Capitol Hill*; Written statement on the status of the USA optoelectronics industry with aural cross-examination by the commission. Trial experience.
 - a. Deposition: 0 (Cumulative total: 0)
 - b. Trial/Hearing/Court appearance: 1 (Cumulative total: 1)
 - c. Technology: Optoelectronics (optical storage, fiber optic communications, sensors, high power lasers, LED lighting, etc).
2. Active case work: 3Q2010-1Q2011; *Finisar Corp. v. Optical Communication Products Inc.*, No. 10-CV-05617 and No. 11-cv-00104 (retained by plaintiff - Morgan, Lewis & Bockius LLP).
 - a. Deposition: 0 (Cumulative total: 0)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 1)
 - c. Technology: semiconductor lasers/VCSSEs, fiber optic transceiver modules
3. Active case work: 1Q2011; *Ziptronix, Inc. v. OmniVision Technologies, Inc., Taiwan Semiconductor Manufacturing Company Ltd., and TSMC North America Corp.*, No. 11-CV-5235 (retained by plaintiff - Alston Bird LLP).
 - a. Deposition: 0 (Cumulative total: 0)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 1)
 - c. Technology: CMOS image sensors; design and fabrication
4. Active case work: 3Q2011 to 3Q2012; *Certain Light-Emitting Diodes and Products Containing Same*, Inv. No. 337-TA-798 (USITC filed July 15, 2011) (retained by respondent Samsung - Covington & Burling LLP). Deposition (x2) and trial experience.
 - a. Deposition: 3 (Cumulative total: 3)
 - b. Trial/Hearing/Court appearance: 1 (Cumulative total: 2)
 - c. Technology: LEDs, device design, color gamut, packaging, optical lensing, lead frames, surface mount packaging.
5. Active case work: 3Q2011 to 2Q2015; *Cheetah Omni, LLC v. Alcatel-Lucent USA Inc.*, No. 11-CV-390 (E.D. Tex. filed July 29, 2011) (retained by plaintiff - Brooks Kushman). Deposition experience (x2).
 - a. Deposition: 1 (Cumulative total: 4)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 2)
 - c. Technology: Fiber optic networks, optical switches, ROADMs and optical filters (dielectric based).
6. Active case work: 4Q2012 to 3Q2014; *Finisar Corp. v. Cheetah Omni, LLC*, No. 11-CV-15625 (E.D. Mich. filed Dec. 23, 2011) (retained by defendant - Brooks Kushman). Deposition experience (x1).
 - a. Deposition: 1 (Cumulative total: 5)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 2)
 - c. Technology: Wavelength optical switches, optical filters, and optical components, liquid crystal technology.
7. Active case work: 4Q2012 to 3Q2013; *Certain Optoelectronic Devices for Fiber Optic Communications, Components Thereof, and Prods. Containing the Same*, Inv. No. 337-TA-860 (USITC filed Sept. 24, 2012) (retained by respondent - Mellanox, IPtronics and FCI Inc and counsel Alston & Bird LLP). Deposition (x2) and trial experience.
 - a. Deposition: 2 (Cumulative total: 7)

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- b. Trial/Hearing/Court appearance: 1 (Cumulative total: 3)
 - c. Technology: IC design, layout, and operation; especially laser driver chips for VCSELs. High speed laboratory testing.
- 8. Active case work: 3Q2014 to 2Q2015; *Microscan Sys., Inc. v. Cognex Corp.*, No. 14-CV-6952 (S.D.N.Y. filed Aug. 27, 2014) (retained by plaintiff – Morrison & Foerster LLP). Deposition (x1) and trial experience.
 - a. Deposition: 1 (Cumulative total: 8)
 - b. Trial/Hearing/Court appearance: 1 (Cumulative total: 4)
 - c. Technology: Bar code scanners and associated optics such as imagers, lasers, LEDs, molded optics. Laboratory testing.
- 9. Active case work: 2Q2014 to 1Q2016; *Avago Techs. Fiber IP (Singapore) PTE Ltd. v. IPtronics Inc.*, No. 10-CV-2863 (N.D. Cal. filed June 29, 2010) (retained by respondent – Alston & Bird LLP).
 - a. Deposition: 0 (Cumulative total: 8)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 4)
 - c. Technology: IC design, layout, and operation; especially laser driver chips for VCSELs. High speed laboratory testing.
- 10. Active case work: 1Q2015 to 3Q2015; *Regarding certain optical disc drives*, Inv. No. 337-TA-897 (USITC filed Oct. 21, 2013) (retained by respondent – O'Melveny & Myers LLP).
 - a. Deposition: 0 (Cumulative total: 8)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 4)
 - c. Technology: CD, CVD, BluRay optical disk drives, optical components, laser diodes, and optical beam patterns. Laboratory testing of visible optics.
- 11. Active case work: 1Q2015 to 2Q2015; *BMW of N. Am., LLC v. Innovative Display Techs., LLC*, No. IPR2015-00933, IPR2015-00934 (P.T.A.B. filed Mar. 24, 2015) (retained by plaintiff – Crowell Moring LLP).
 - a. Deposition: 0 (Cumulative total: 8)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 4)
 - c. Technology: LED backlights for vehicles; LED package and optical module/luminaire design.
- 12. Active case work: 1Q2015 to 2Q2015; *BMW of N. Am., LLC v. Innovative Display Techs., LLC*, No. IPR2015-00934 (P.T.A.B. filed Mar. 24, 2015) (retained by plaintiff – Crowell Moring LLP).
 - a. Deposition: 0 (Cumulative total: 8)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 4)
 - c. Technology: LED backlights for vehicles; LED package and optical module/luminaire design.
- 13. Active case work: 1Q2015 to 3Q2016; *OneChip Photonics Inc.*, Pre-litigation IP Case No. TBD; (retained by plaintiff – Patent Monetization Inc. (PMI)).
 - a. Deposition: 0 (Cumulative total: 8)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 4)
 - c. Technology: Photonic Integrated Circuits using InP (Indium Phosphide); lasers, detectors, waveguides, mux/demux, spot size converters.
- 14. Active case work: 2Q2016; *IDT v. Hyundai Motor Co.*, No. 14-CV-201 (E.D. Tex. filed May 4, 2015) (retained by defendant – DLA Piper LLP).
 - a. Deposition: 0 (Cumulative total: 8)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 4)
 - c. Technology: LED devices, packages and modules for vehicles.
- 15. Active case work: 1Q2015 to 3Q2015; *Cree Inc., v. Honeywell Int'l Inc.*, No. 3:14-CV-737 (W.D. Wisc. filed Oct. 28, 2014) (retained by defendant - Arnold & Porter LLP). Deposition experience (x1).
 - a. Deposition: 1 (Cumulative total: 9)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 4)
 - c. Technology: LEDs for mobile phones; LED epitaxial layers, device designs, optical lensing, packaging. Laboratory reverse engineering using TEM/SEM/EDAX etc.
- 16. Active case work: 2Q2015 to 4Q2015; *Trs. of Boston Univ. v. Everlight Elecs. Co.*, Nos. 12-CV-11935, 12-CV-12326, 12-CV-12330 (D. Mass. filed Oct. 17, 2012) (retained by plaintiff - Shore Chan DePumpo LLP). Deposition (x1) and trial experience.
 - a. Deposition: 1 (Cumulative total: 10)
 - b. Trial/Hearing/Court appearance: 1 (Cumulative total: 5)
 - c. Technology: GaN buffer layers for LEDs, and associated technical marketing, sales and import process into USA.
- 17. Active case work: 3Q2015 to 3Q2016; *LG Elecs. Inc. v. Toshiba Samsung Storage Tech. Corp.*, No. 12-CV-1063 (D. Del. filed Aug. 22, 2012) and IPR2015-01659 (PTAB filed Jul. 31st 2015) (retained by plaintiff – DLA Piper & Nixon Law). IPR deposition (i.e. trial) experience (x1).
 - a. Deposition: 1 (Cumulative total: 11)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 1 (Cumulative total: 1)
 - d. Technology: Optical storage using laser diodes, photodetectors and optical materials

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18. Active case work: 3Q2015 to 3Q2016; *LG Elecs. Inc. v. Toshiba Samsung Storage Tech. Corp.*, No. 12-CV-1063 (D. Del. filed Aug. 22, 2012) and IPR2015-01642 (PTAB filed Jul. 30th 2015) (retained by plaintiff – DLA Piper & Nixon Law).
 - a. Deposition: 0 (Cumulative total: 11)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 1)
 - d. Technology: Optical storage using laser diodes, photodetectors and optical materials
19. Active case work: 3Q2015 to 3Q2016; *LG Elecs. Inc. v. Toshiba Samsung Storage Tech. Corp.*, IPR2016-01677 (PTAB filed Aug. 24th 2016) (retained by plaintiff – DLA Piper & Nixon Law).
 - a. Deposition: 0 (Cumulative total: 11)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 1)
 - d. Technology: Optical storage using laser diodes, photodetectors and optical materials
20. Active case work: 3Q2015 to 3Q2016; *LG Elecs. Inc. v. Toshiba Samsung Storage Tech. Corp.*, IPR2015-01678 (PTAB filed Aug. 24th 2016) (retained by plaintiff – DLA Piper & Nixon Law).
 - a. Deposition: 0 (Cumulative total: 11)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 1)
 - d. Technology: Optical storage using laser diodes, photodetectors and optical materials
21. Active case work: 3Q2015 to 3Q2016; *LG Elecs. Inc. v. Toshiba Samsung Storage Tech. Corp.*, IPR2015-01644 (PTAB filed Jul. 30th 2015) (retained by plaintiff – DLA Piper & Nixon Law).
 - a. Deposition: 0 (Cumulative total: 11)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 1)
 - d. Technology: Optical storage using laser diodes, photodetectors and optical materials
22. Active case work: 3Q2015 to 3Q2016; *LG Elecs. Inc. v. Toshiba Samsung Storage Tech. Corp.*, IPR2015-01653 (PTAB filed Jul. 31st 2015) (retained by plaintiff – DLA Piper & Nixon Law).
 - a. Deposition: 0 (Cumulative total: 11)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 1)
 - d. Technology: Optical storage using laser diodes, photodetectors and optical materials
23. Active case work: 3Q2015; *Heptagon* Pre-litigation IPR petition; (retained by plaintiff – Proskauer Rose LLP).
 - a. Deposition: 0 (Cumulative total: 11)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 1)
 - d. Technology: Proximity sensors using LEDs, photodetectors and innovative semiconductor packaging.
24. Active case work: 1Q2016 to 2Q2017; *Dentsply v. Am. Orthodontics Inc.*, No. 15-CV-1706 (D. Pa. filed Sept. 1, 2015) and IPR2016-01652 (PTAB filed Aug. 19th 2016) (retained by defendant – Godfrey Kahn LLP). IPR deposition (x1) experience.
 - a. Deposition: 1 (Cumulative total: 12)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 1 (Cumulative total: 2)
 - d. Technology: High power lasers (YAG, CO₂) to engrave and scribe dental orthodontic brackets.
25. Active case work: 2Q2016 to 2Q2017; *Koninklijke Philips N.V. v. Elect-tech Int'l (H.K.)*, No. 14-CV-2737 (N.D. Cal. filed Aug. 12, 2015) (retained by plaintiff – Reed Smith LLP).
 - a. Deposition: 0 (Cumulative total: 12)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 2)
 - d. Technology: Trade secret MOCVD epitaxial growth techniques for high power GaN/InGa_N LED technology
26. Active case work: 2Q2016 to 4Q2016; *Bluestone Innovations llc. v. E. Mishan & Co. Inc.*, Pre-litigation IP Case No. TBD; (retained by defendant - Notaro, Michalos, & Zaccaria P.C.).
 - a. Deposition: 0 (Cumulative total: 12)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 2)
 - d. Technology: GaN/InGa_N LEDs on structured substrates with reverse engineering laboratory analysis.
27. Active case work: 3Q2016-1Q2017; *511 Innovations Inc. v. HTC Am., Inc.*, No. 15-CV-1524 (E.D. Tex. Filed June 30, 2016) (retained by plaintiff – The Davis Firm). Deposition (x2)
 - a. Deposition: 2 (Cumulative total: 14)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 2)
 - d. Technology: Proximity sensors for mobile phones.
28. Active case work: 3Q2016-4Q2016; *MellanoX Techs. Ltd. v. Methode Elecs. Inc.*, No. 15-CV-3730 (N.D. Cal. filed Aug. 16, 2015) (retained by plaintiff – Alston & Bird).

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- a. Deposition: 0 (Cumulative total: 14)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 2)
 - d. Technology: Fiber optic transceiver modules.
29. Active case work: 4Q2016-1Q2017; *Novanta Inc., v Irradion Inc.*, No. 15-CV-01033 (D. Del. filed Nov. 9, 2015) (retained by defendant – Barnes and Thornburg LLP).
 - a. Deposition: 0 (Cumulative total: 14)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 2)
 - d. Technology: High power gas laser design and operation.
30. Active case work: 1Q2017-1Q2017; *Optolium Inc., v Cree Inc.*, No. 16-CV-03828; (D. Az. filed Nov. 3, 2016) (retained by defendant – Jones Day).
 - a. Deposition: 0 (Cumulative total: 14)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 2)
 - d. Technology: LED packaging for illumination.
31. Active case work: 1Q2017-4Q2017; *Polygroup Macau Ltd (BVI), v Willis Electric Co., Ltd.*, 15-CV-00552 (W.D. NC. Filed: Apr 21st 2016), (retained by plaintiff - Troutman Sanders LLP). Deposition experience (x2)
 - a. Deposition: 2 (Cumulative total: 16)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 1 (Cumulative total: 3)
 - d. Technology: Electrical connector, IC, and LED light product design.
32. Active case work: 1Q2017-4Q2017; *Polygroup Macau Ltd (BVI), v Willis Electric Co., Ltd.*, IPR2017-00309 (PTAB filed Nov. 21st 2017), (retained by plaintiff - Troutman Sanders LLP).
 - a. Deposition: 0 (Cumulative total: 16)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Electrical connector, IC, and LED light product design.
33. Active case work: 1Q2017-4Q2017; *Polygroup Macau Ltd (BVI), v Willis Electric Co., Ltd.*, IPR2017-00330 (PTAB filed Nov. 24th 2017), (retained by plaintiff - Troutman Sanders LLP).
 - a. Deposition: 0 (Cumulative total: 16)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Electrical connector, IC, and LED light product design.
34. Active case work: 1Q2017-4Q2017; *Polygroup Macau Ltd (BVI), v Willis Electric Co., Ltd.*, IPR2017-00331 (PTAB filed Nov. 24th 2017), (retained by plaintiff - Troutman Sanders LLP).
 - a. Deposition: 0 (Cumulative total: 16)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Electrical connector, IC, and LED light product design.
35. Active case work: 1Q2017-4Q2017; *Polygroup Macau Ltd (BVI), v Willis Electric Co., Ltd.*, IPR2017-00332 (PTAB filed Nov. 25th 2017), (retained by plaintiff - Troutman Sanders LLP).
 - a. Deposition: 0 (Cumulative total: 16)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Electrical connector, IC, and LED light product design.
36. Active case work: 1Q2017-4Q2017; *Polygroup Macau Ltd (BVI), v Willis Electric Co., Ltd.*, IPR2017-00334 (PTAB filed Nov. 25th 2017), (retained by plaintiff - Troutman Sanders LLP).
 - a. Deposition: 0 (Cumulative total: 16)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Electrical connector, IC, and LED light product design.
37. Active case work: 1Q2017-4Q2017; *Polygroup Macau Ltd (BVI), v Willis Electric Co., Ltd.*, IPR2017-00335 (PTAB filed Nov. 25th 2017), (retained by plaintiff - Troutman Sanders LLP).
 - a. Deposition: 0 (Cumulative total: 16)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Electrical connector, IC, and LED light product design.
38. Active case work: 1Q2017-4Q2017; *Macom Technology Solutions Holdings Inc., and Nitronex, LLC., v Infineon Technologies AG and Infineon Technologies North American Corp.*, 16-CV-02859 (C.D. Ca. filed Apr 26, 2016) (retained by plaintiff – Baker Botts LLP).
 - a. Deposition: 0 (Cumulative total: 16)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)

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- d. Technology: High performance GaN based RF FET device design and operation.
39. Active case work: 1Q2017-1Q2017; *Quanergy Systems, Inc. v. Velodyne LiDAR, Inc.* (16-cv-05251; N.D. Ca. filed: Sep 13th 2016 (retained by plaintiff Velodyne) - Latham & Watkins LLP
 - a. Deposition: 0 (Cumulative total: 16)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Laser/photodetector based LIDAR design and operation for self-driving vehicles.
40. Active case work: 1Q2017-2Q2017; *The Chamberlain Group Inc., v. Techtronic Industries Co., Ltd, Techtronic Industries North America et al.*, Challenge to U.S Patent No. 7,862,209 (retained by plaintiff – The Chamberlain Group) – Morgan, Lewis & Brockius, LLP.
 - a. Deposition: 0 (Cumulative total: 16)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 5)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: LED based luminaire design for lighting.
41. Active case work: 1Q2017-1Q2018; *Uber Technologies Inc., Ottomotto LLC., Otto Trucking LLC., v. Waymo LLC (Google)*, 17-CV-00939 (N.D. Ca filed: Mar 10th, 2017), (retained by defendant Uber Technologies Inc.) – Morrison and Foerster LLP. Deposition experience (x3) and trial experience (case settled at trial).
 - a. Deposition: 3 (Cumulative total: 19)
 - b. Trial/Hearing/Court appearance: 1 (Cumulative total: 6)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Optical and electrical device, optics, and package designs for LIDAR based self-driving vehicles.
42. Active case work: 2Q2017-2Q2017; *Heptagon v. ST Mircoelectronics* IPR petition; (retained by plaintiff Heptagon) – Proskauer Rose LLP.
 - a. Deposition: 0 (Cumulative total: 19)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 6)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Optoelectronic based proximity sensors using LEDs and photodetectors.
43. Active case work: 2Q2017-2Q2018; *AT&T Inc., v. Sycamore Holdings LLC.*, 16-CV-00588 (E. D. Tx filed: Jun 6th 2016); (retained by defendant AT&T Inc.) - Kirkland and Ellis LLP. Deposition experience (x1)
 - a. Deposition: 1 (Cumulative total: 20)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 6)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Coding designs of optical digital signals for high performance optical networks.
44. Active case work: 2Q2017 – 4Q2017; *Clearfield Inc., v. CommScope, ADC, Tyco, and TE Connectivity*, 17-CV-00307 (D.C. Minn. filed Jan 31st 2017); (retained by defendant Clearfield, Inc.) – Pepper Hamilton LLP
 - a. Deposition: 0 (Cumulative total: 20)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 6)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Fiber optic connectors, panels, and distribution switches using optoelectronic components.
45. Active case work: 2Q2017 – 4Q2017; *Clearfield Inc., v. CommScope, ADC, Tyco, and TE Connectivity*, IPR2017-02122 (PTAB filed Sep. 15th 2017); (retained by defendant Clearfield, Inc.) – Pepper Hamilton LLP
 - a. Deposition: 0 (Cumulative total: 20)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 6)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Fiber optic connectors, panels, and distribution switches using optoelectronic components.
46. Active case work: 2Q2017 – 4Q2017; *Clearfield Inc., v. CommScope, ADC, Tyco, and TE Connectivity*, IPR2018-00003 (PTAB filed Oct. 6th 2017); (retained by defendant Clearfield, Inc.) – Pepper Hamilton LLP
 - a. Deposition: 0 (Cumulative total: 20)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 6)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Fiber optic connectors, panels, and distribution switches using optoelectronic components.
47. Active case work: 2Q2017 – 4Q2017; *Clearfield Inc., v. CommScope, ADC, Tyco, and TE Connectivity*, IPR2018-00154 (PTAB filed Nov. 7th 2017); (retained by defendant Clearfield, Inc.) – Pepper Hamilton LLP
 - a. Deposition: 0 (Cumulative total: 20)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 6)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Fiber optic connectors, panels, and distribution switches using optoelectronic components.
48. Active case work: 4Q2016-2Q2017; *Antunes Inc.*, Pre-litigation IP patent review; Case No. TBD; (retained by plaintiff – Antunes Inc. and Chapman Spingola LLP).

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- a. Deposition: 0 (Cumulative total: 20)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 6)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: High power grating surface emitter laser diodes, and associated packaging and device design for laser-based cooking ovens.
49. Active case work: 1Q2017-2Q2017; *Core Optical Technologies LLC v. Fujitsu Network Communications, Inc.*, 16-CV-00437 (C. D. Ca filed: Mar 7th 2016); (retained by defendant Fujitsu Network Communications) – Morrison & Foerster LLP.
 - a. Deposition: 0 (Cumulative total: 20)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 6)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Fiber optic based optical communications for coherent technologies
50. Active case work: 3Q2017-4Q2018; *Oyster Optics LLC v. Coriant America, et al*, 16-CV-01302 (E. D. Tx filed: Nov 24th 2016); (retained by plaintiff Oyster Optics LLC) – Russ August & Kabat LLP.
 - a. Deposition: 1 (Cumulative total: 21)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 6)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Fiber optic based optoelectronic semiconductor component design and operation.
51. Active case work: 3Q2017-4Q2018; *Oyster Optics LLC v. Infinera, Alcatel-Lucent, Fujitsu, Cisco Systems, Huawei*, 16-CV-01295, 16-CV-01297, 16-CV-01299, 16-CV-01301, 16-CV-01303 (E. D. Tx filed: Nov 24th 2016); (retained by plaintiff Oyster Optics LLC) – Russ August & Kabat LLP. Deposition experience (x1).
 - a. Deposition: 1 (Cumulative total: 22)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 6)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Fiber optic based optoelectronic semiconductor component design and operation.
52. Active case work: 3Q2017-4Q2017; *Olympus*, Pre-litigation IP and Due Diligence; Case No. TBD; (retained by plaintiff – Olympus and Fish & Richardson P.C.)
 - a. Deposition: 0 (Cumulative total: 22)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 6)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: High volume, low cost optical lens and optics technology.
53. Active case work: 3Q2017-1Q2018; *Honeywell International, Inc et al v. Code Corporation et al.*, ITC No 337-TA-1061 (filed Jun 28th 2017), “Certain barcode readers, scan engines, products containing the same, and components thereof,” (retained by respondent – Honeywell and Alston and Bird LLP)
 - a. Deposition: 1 (Cumulative total: 23)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 6)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Bar-code scanners and associated optical/optoelectronic component performance and operation.
54. Active case work: 4Q2017-1Q2019; *Godo Kaisha IP Bridge 1 v. Intel Corp.*, 17-CV-00676 (filed Sep 29th 2017), (retained by plaintiff – Godo Kaisha IP Bridge 1) - Ropes and Gray, LLP.
 - a. Deposition: 0 (Cumulative total: 23)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 6)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Fabrication, design, and reverse engineering of silicon-based FET ICs.
55. Active case work: 4Q2017-3Q2018; *Maxim Integrated Products, Inc. and Volterra Semiconductor LLC., v. Silicon Mitus Inc., and Silicon Mitus Technology Inc.*, 17-CV-03507 (N. D. Ca: filed Jun 16th 2017), (retained by defendant Silicon Mitus) – Pillsbury Winthrop Shaw Pittman, LLP. (Deposition and trial experience X1)
 - a. Deposition: 1 (Cumulative total: 24)
 - b. Trial/Hearing/Court appearance: 1 (Cumulative total: 7)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Fabrication, design, characterization, and packaging of silicon-based FET ICs for power applications
56. Active case work: 2Q2018-3Q2018; *Cree, Inc., v. Document Security Systems Inc.*, 17-CV-4263 (C.D. Ca filed: Apr 17th 2017), (retained by defendant Cree Inc.) - Jones Day, LLP
 - a. Deposition: 0 (Cumulative total: 24)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 7)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Design and packaging of high brightness GaN based LEDs
57. Active case work: 2Q2018-2Q2018; *Weisen v., Ram Telecom International (RTI).*, CGC-16-554331 (Sup Ca: filed 3rd May 2017) (retained by plaintiff Weisen, J) - Yetter Coleman, LLP. Deposition experience (x1) and trial experience (x1).
 - a. Deposition: 1 (Cumulative total: 25)
 - b. Trial/Hearing/Court appearance: 1 (Cumulative total: 8)

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- c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Submarine and subsea fiber optic cables: technology, markets, economic impact, and history.
58. Active case work: 2Q2018-3Q2018; *Seoul Semiconductor, v. Document Security Systems Inc.*, 17-CV-00981 (C.D. Ca filed: Apr 17th 2017), (retained by defendant Seoul Semiconductor) - Latham and Watkins LLP
- a. Deposition: 1 (Cumulative total: 26)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 8)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Design and packaging of high brightness GaN based LEDs
59. Active case work: 3Q2018-4Q2018; *NEC Display Solutions Inc., and NEC Display Solutions of America, Inc., v. Ultravision, ITC Case# 337-TA-1114* (filed 24th May 2018), “Certain Modular LED Display Panels and Components Thereof,” (retained by respondent Jones Day, LLP)
- a. Deposition: 0 (Cumulative total: 26)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 8)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: Large LED Panels, LED displays, LED modular panel design, LED thermal engineering and color displays for outdoor environments.
60. Active case work: 3Q2018-3Q2018; IFT (Innovative Foundry Technologies) (pre-lit), retained by plaintiff Mintz Levin, Cohen, Ferris, Glovsky, and Popeo PC.)
- a. Deposition: 0 (Cumulative total: 26)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 8)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 3)
 - d. Technology: CMOS device (inc FinFETs) and IC fabrication techniques at 40, 28, 20, 16nm nodes.
61. Active case work: 4Q2018-2Q2019; *Eidolon Optical LLC, v. Haag-Streit AG.*, IPR2018-01311, (retained by patent owner Eidolon Optical LLC) - McInnes & McLane LLP
- a. Deposition: 0 (Cumulative total: 26)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 8)
 - c. IPR/PTAB trial/deposition: 1 (Cumulative total: 4)
 - d. Technology: High brightness InGaAlP, GaP, AlGaAs, and GaN/InGaN based LEDs for use in medical instruments
62. Active case work: 3Q2018-3Q2018; *Voxtel Inc., v. Joseph Lachapelle & Luminar Technologies Inc.*, 18-CV-27356 (D. Or. filed: Dec 18th 2017), (retained by plaintiff Voxtel Inc.) - Ater Wynne LLP
- a. Deposition: 0 (Cumulative total: 26)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 8)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: LIDAR optical and electronic component and system technology
63. Active case work: 3Q2018-1Q2019; *Alta Devices, v. LG Electronics Inc.*, 18-CV-00404 (N.D. Ca. filed: May 7th 2018), (retained by defendant LG Electronics Inc.) - Hogan Lovells LLP
- a. Deposition: 0 (Cumulative total: 26)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 8)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: Trade Secret GaAs based solar cell design, fabrication, manufacturing, and device performance
64. Active case work: 3Q2018-3Q18; *Opterna AM Inc., v. Commscope Technologies Inc.*, Pre-litigation preparation, (retained by defendant Opterna AM Inc.) - Sterne Kessler LLP
- a. Deposition: 0 (Cumulative total: 26)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 8)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: Fiber optic connectors, panels, and distribution switches using optoelectronic components.
65. Active case work: 4Q2018 – 1Q2019; *U.D. Electronic Corp., v. Pulse Electronics, Inc.*, Preparation for IPR filing: IPR2019-00508 (PTAB filed Dec 26th 2018); and support for 18-CV-00373 (S.D. Ca. filed: Feb 16th 2018) (retained by petitioner U. D. Electronic Corp.) – Procopio, Cory, Hargreaves and Savitch LLP
- a. Deposition: 0 (Cumulative total: 26)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 8)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: Electrical and fiber optic connectors, panels, and distribution switches using both electronic and optoelectronic components.
66. Active case work: 4Q2018 – 1Q2019; *U.D. Electronic Corp., v. Pulse Electronics, Inc.*, Preparation for IPR filing: IPR2019-00515 (PTAB filed Dec 31st 2018); and support for 18-CV-00373 (S.D. Ca. filed: Feb 16th 2018) (retained by petitioner U. D. Electronic Corp.) – Procopio, Cory, Hargreaves and Savitch LLP
- a. Deposition: 0 (Cumulative total: 26)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 8)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)

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- d. Technology: Electrical and fiber optic connectors, panels, and distribution switches using both electronic and optoelectronic components.
- 67. Active case work: 4Q2018 – 1Q2019; *U.D. Electronic Corp., v. Pulse Electronics, Inc.*, Preparation for IPR filing: IPR2019-00262 (PTAB filed Nov 9th 2018); and support for 18-CV-00373 (S.D. Ca. filed: Feb 16th 2018) (retained by petitioner U. D. Electronic Corp.) – Procopio, Cory, Hargreaves and Savitch LLP
 - a. Deposition: 0 (Cumulative total: 26)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 8)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: Electrical and fiber optic connectors, panels, and distribution switches using both electronic and optoelectronic components.
- 68. Active case work: 4Q2018 – 1Q2019; *U.D. Electronic Corp., v. Pulse Electronics, Inc.*, Preparation for IPR filing: IPR2019-00511 (PTAB filed Dec 28th 2018); and support for 18-CV-00373 (S.D. Ca. filed: Feb 16th 2018) (retained by petitioner U. D. Electronic Corp.) – Procopio, Cory, Hargreaves and Savitch LLP
 - a. Deposition: 0 (Cumulative total: 26)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 8)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: Electrical and fiber optic connectors, panels, and distribution switches using both electronic and optoelectronic components.
- 69. Active case work: 4Q2018 – 1Q2019; *Semiconductor Energy Laboratory Co. Ltd., v. Bluehouse Global Ltd.*, Preparation for IPR filing: IPR2018-01405 (PTAB filed Jul 18th 2018); (retained by patent owner SEL Co Ltd.) – Robinson Intellectual Law Office, P.C. (Counsel represented by Fish and Richardson LLP).
 - a. Deposition: 0 (Cumulative total: 26)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 8)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: Semiconductor displays using active matrix LCD and thin film transistor technology. Design, fabrication, and circuit layout.
- 70. Active case work: 4Q2018 – 1Q2019; *Semiconductor Energy Laboratory Co. Ltd., v. Bluehouse Global Ltd.*, Preparation for IPR filing: IPR2018-01393 (PTAB filed Jul 13th 2018); (retained by patent owner SEL Co Ltd.) – Robinson Intellectual Law Office, P.C. (Counsel represented by Fish and Richardson LLP)
 - a. Deposition: 0 (Cumulative total: 26)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 8)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: Semiconductor displays using active matrix LCD and thin film transistor technology. Design and fabrication technology.
- 71. Active case work: 4Q2018 - 1Q2019; *The Sloan Company dba SloanLED, v. Principle Lighting Group, LLC.*, 18-CV-06449 (C.D. Ca. filed: Jul 26th 2018), (retained by defendant SloanLED.) - Ferguson Case Orr Paterson LLP
 - a. Deposition: 0 (Cumulative total: 26)
 - b. Trial/Hearing/Court appearance: 1 (Cumulative total: 9)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: LED lighting, LED luminaires, LED performance, electrical and mechanical design and construction.
- 72. Active case work: 1Q2019 - 1Q2019; *HTC Corporation, v. Lemire Illumination Technologies.*, 18-CV-00021 (E.D. Tx. filed: Jan 21st 2018), (retained by defendant HTC Corporation) - Perkins Coie LLP
 - a. Deposition: 0 (Cumulative total: 26)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 9)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: LEDs for mobile phones
- 73. Active case work: 1Q2019 - 2Q2019; *Frys Electronics, v. Seoul Semiconductor Co, and Seoul Viosys Co.,* 2:18-CV-00386-JRG (E. D. Tx. filed: Nov 20th 2018), (retained by defendant Frys Electronics) - Lamkin IP Defense
 - a. Deposition: 0 (Cumulative total: 26),
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 9)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: LED chips, LED packaging, LED lenses, LED luminaires, backlights, displays, and televisions/monitors
- 74. Active case work: 2Q2019 – 4Q2019; *Hanwha Q CELLS & Advance Materials Corporation, v. JinkoSolar, LONGi Solar, REC Solar*, ITC 337-TA-1151 (filed: Apr 4th 2019), (“Certain Photovoltaic Cells and Products Containing Same,”), retained by patent owner and plaintiff Hanwha Q CELLS) - Covington and Burling LLP
 - a. Deposition: 2 (Cumulative total: 28)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 9)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
- 75. Active case work: 2Q2019-3Q2019; *Hanwha Q CELLS & Advance Materials Corporation, v. JinkoSolar and affiliates*, 19-CV-00450 (D. Del. filed: Jan 21st 2018), (retained by patent owner and plaintiff Hanwha Q CELLS) - Covington and Burling LLP

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- a. Deposition: 0 (Cumulative total: 28)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 9)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: Silicon solar cells and materials analysis of passivation layers
76. Active case work: 2Q2019-2Q2019; *Oyster Optics LLC v. Infinera Inc.*, 2:18-CV-00206 (E. D. Tx filed: May 15th 2018); (retained by plaintiff Oyster Optics LLC) – Russ August & Kabat LLP.
- a. Deposition: 0 (Cumulative total: 28)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 9)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: Fiber optic based optoelectronic semiconductor component design and operation.
77. Active case work: 2Q2019 – 2Q2019; *Nichia Corporation & Osram Opto Semiconductors Inc., v. Lighting Science Group Corp.*, IPR filing: IPR2019-01259 (PTAB filed Jun 28th 2019); (retained by petitioner Nichia and Osram Opto.) – Shearman and Sterling, LLP
- a. Deposition: 0 (Cumulative total: 28)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 9)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: LED chips, LED packaging and ceramic thermal heat sinking technology.
78. Active case work: 2Q2019 – 3Q2019; *Nichia Corporation v. Lighting Science Group Corp.*, 2:17-CV-08849 (C. D. Ca filed Jul 12th 2017); (retained by defendant Nichia) – Shearman and Sterling, LLP
- a. Deposition: 0 (Cumulative total: 28)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 9)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: LED chips, LED packaging and ceramic thermal heat sinking technology
79. Active case work: 3Q2019-3Q2019; *Applied Optoelectronics Inc v. Class Action Lawsuit*, 4:17-CV-02399 (S. D. Tx filed: Mar 6th 2018); (retained by plaintiff Class Action Lawsuit) – Levi and Korsinsky, LLP
- a. Deposition: 0 (Cumulative total: 28)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 9)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: Fiber optic based optoelectronic semiconductor components, transceivers, and sub-systems.
80. Active case work: 3Q2019-3Q2019; *DNA Motor v. Kuen Hwa Traffic Industrial Co.*, 18-CV-05664 (C. D. Ca filed: Jan 15th 2019); (defendant DNA Motor) – Elizabeth Yang, Law and Mediation Office
- a. Deposition: 0 (Cumulative total: 28)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 9)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: LED design patent, and the design of an aftermarket LED based headlight assembly for an automobile.
81. Active case work: 3Q2019 – 1Q2020; *Nichia Corporation, Osram Opto Semiconductors Inc., Philips Lumileds, GE Consumer Lighting, Cree, and Signify v. Lighting Science Group Corp.*, ITC 337-TA-1168 (filed: Apr 30th 2019), (“Certain Light-Emitting-Diode products, systems, and components thereof (III)”) (retained by respondents Nichia, Osram Optoelectronics, Philips Lumileds, GE Consumer Lighting, Cree Hong Kong., Signify Corp.) – Shearman and Sterling, LLP
- a. Deposition: 1 (Cumulative total: 29)
 - b. Trial/Hearing/Court appearance: 1 (Cumulative total: 10)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: LED chips, LED packaging and ceramic thermal heat sinking technology (LTCC).
82. Active case work: 4Q2019 – 1Q2020; *Amazon.com Inc, Bed, Bath and Beyond, IKEA, Target, and Walmart Inc., v. Regents of the University of California*, ITC 337-TA-1172 (filed: July 30th 2019), (“Certain Filament Light-Emitting-Diodes and products containing same”) (retained by respondents Amazon.com Inc, Bed, Bath and Beyond, IKEA, Target, and Walmart Inc.) – Morrison and Foerster, LLP
- a. Deposition: 2 (Cumulative total: 31)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 10)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: LED chips, LED packaging and light bulb filaments with transparent sub-mounts.
83. Active case work: 4Q2019 – 4Q2019; *U.D. Electronic Corp., v. Pulse Electronics, Inc.*, IPR2019-00511 (PTAB filed Dec 28th 2018), (retained by petitioner U. D. Electronic Corp.) – Procopio, Cory, Hargreaves and Savitch LLP
- a. Deposition: 0 (Cumulative total: 31)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 10)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: Electrical and fiber optic connectors, panels, and distribution switches using both electronic and optoelectronic components.

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84. Active case work: 1Q2020 – 2Q2020; *IKEA, v. Regents of the University of California*, ITC 337-TA-1172 (filed: July 30th 2019), (“Certain Filament Light-Emitting-Diodes and products containing same”) (retained by respondents IKEA) – Flaster and Greenberg, LLP
 - a. Deposition: 2 (Cumulative total: 31)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 10)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: LED chips, LED packaging and light bulb filaments with transparent sub-mounts.
85. Active case work: 1Q2020-1Q2020; *Hanwha Solutions Corporation, v. Longi Green Energy, Longi Solar Technology, Longi Trading et al.*, IPR2019-01072 (PTAB filed 13th May 2019), (retained by patent owner Hanwha Solutions Corporation) - Covington and Burling LLP
 - a. Deposition: 0 (Cumulative total: 31)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 10)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: Silicon solar cells and materials analysis of passivation layers
86. Active case work: 1Q2020-1Q2020; *Hanwha Solutions Corporation, v. REC Solar Pte. Ltd. and JinkSolar (U.S.) Inc.* IPR2019-01145 (PTAB filed 6th March 2019), (retained by patent owner Hanwha Solutions Corporation) - Covington and Burling LLP
 - a. Deposition: 0 (Cumulative total: 31)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 10)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: Silicon solar cells and materials analysis of passivation layers
87. Active case work: 4Q2019 – 2Q2020; *Viavi Solutions Inc., v Optrontec Inc.*, ITC 337-TA-1187 (filed: 18th November 2019), (“Certain Electronic devices with Optical Filters and Optical Sensor Systems and Components Thereof”) (retained by complainant Viavi Solutions Inc.,) – Venable, LLP
 - a. Deposition: 0 (Cumulative total: 31)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 10)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: Optical filters and optical sensor systems, design and fabrication of dielectric materials for passband filters in applications such as optical communications, imaging, sensing, medical, automotive.
88. Active case work: 2Q2020 – 4Q2020; *Leviton Manufacturing Co., v. Corning Optical Communications LLC.*, ITC 337-TA-1194 (filed: 19th March 2020), (“Certain High-Density Fiber Optic Equipment and Components Thereof”) (retained by respondent Leviton Manufacturing Co.,) – Morrison & Foerster, LLP
 - a. Deposition: 1 (Cumulative total: 32)
 - b. Trial/Hearing/Court appearance: 1 (Cumulative total: 11)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: Fiber optic adapters, fiber optic connectors (simplex, duplex, quad, multi-fiber), fiber trays, racks, and fiber cabinet equipment.
 - e. Technology: LED chips, LED packaging and light bulb filaments with transparent sub-mounts.
89. Active case work: 2Q2020 – 2Q2020; subject to PO/NDA and engagement letter xxx v. yyy, Post Grant Review petition for proceedings (US Patent # zzz), retained by Morrison and Foerster, LLP
 - a. Deposition: 0 (Cumulative total: 31)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 10)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Optoelectronics, LEDs, lead frame packaging, optics, optical lenses, GaN (Gallium Nitride), optical transparency
90. Active case work: 1Q2020-3Q2020; *Collect LLC, v. Samsung Electronics Co., LTD and Samsung Electronics America, Inc.*, IPR2020-00560 (PTAB filed 16th Feb 2020), (retained by patent owner Collect LLC) – retained by Kramer Levin Naftalis & Frankel LLP
 - a. Deposition: 0 (Cumulative total: 32)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 11)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: Silicon CMOS image sensors, drive electronics, smart pixels and CCD technology
91. Active case work: 2Q2020-2Q2020; *Panasonic, v. 3M Innovative Properties Company.*, Preparation for IPR filing, (retained by defendant Panasonic) – retained by Westerman Hattori Daniels & Adrian LLP
 - a. Deposition: 0 (Cumulative total: 32)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 11)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 4)
 - d. Technology: Touch sensor (resistive, optical, and capacitive) technology for mobile displays. Analysis of display, electronic, and optical technologies.
92. Active case work: 2Q2020-3Q2020; *Longi Green Energy Technology Co, Longi Solar Technology Co, Long Solar Technology (H.K., Kuching, Taizhou, Zhejiang, Hefei, US) v. Hanwha Solutions Corporation.*, IPR 2019-01072, (retained by patent owner Hanwha Solutions Corporation) – Quinn Emanuel Urquhart & Sullivan, LLP
 - a. Deposition: 1 (Cumulative total: 33)

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- b. Trial/Hearing/Court appearance: 0 (Cumulative total: 11)
 - c. IPR/PTAB trial/deposition: 1 (Cumulative total: 5)
 - d. Optoelectronics; solar cell design, fabrication, device performance, packaging, and interface issues relating to passivation (both chemical and electric field enhanced).
93. Active case work: 3Q2020-3Q2020; *Oyster Optics LLC v. Ciena Corp.*, 4:17-CV-05920 (N. D. CA filed: April 22nd 2020); (retained by plaintiff Oyster Optics LLC) – Russ August & Kabat LLP.
- a. Deposition: 0 (Cumulative total: 33)
 - b. Trial/Hearing/Court appearance: 1 (Cumulative total: 12)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 5)
 - d. Technology: Fiber optic based optoelectronic semiconductor component design and operation, especially phase shift keying and phase based coherent communications.
94. Active case work: 3Q2020-2Q2021; *Capella Photonics Inc., v. Infinera Corporation, Tellabs, Tellabs Operations Inc., Coriant American Inc., and Coriant USA Inc.*, 2:20-CV-00077 (E. D. TX filed: March 16th 2020); (retained by defendant Infinera Inc.) – Baker Botts LLP.
- a. Deposition: 1 (Cumulative total: 34)
 - b. Trial/Hearing/Court appearance: 1 (Cumulative total: 12)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 5)
 - d. Technology: Fiber optic wavelength selective switches (WSS), reconfigurable add-drop multiplexors (ROADMs), and their design. Technical issues include polarization, wavelength selection, coupling, mux/demux and operation in optical networks.
95. Active case work: 3Q2020-3Q2020; *Longi Green Energy Technology Co, Longi Solar Technology Co, Long Solar Technology (H.K., Kuching, Taizhou, Zhejiang, Hefei, US) v. Hanwha Solutions Corporation.*, IPR 2020-00353, (retained by patent owner Hanwha Solutions Corporation) – Quinn Emanuel Urquhart & Sullivan, LLP
- a. Deposition: 0 (Cumulative total: 34)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 12)
 - c. IPR/PTAB trial/deposition: 1 (Cumulative total: 6)
 - d. Optoelectronics: solar cell design, fabrication, device performance, packaging, and interface issues relating to passivation (both chemical and electric field enhanced).
96. Active case work: 3Q2020-2Q2021; *Appotronics Corporation Ltd. v. Delta Electronics Inc.*, 2:19-CV-00466 (E. D. Va filed: July 22nd 2020); (retained by defendant Delta Corporation Inc) – Pillsbury Winthrop Shaw Pitman LLP.
- a. Deposition: 1 (Cumulative total: 35)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 12)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: Light projectors for display and the color wheel, phosphor technology, high power visible lasers for projection, and the associated packaging of the modules/projectors for efficient cost design..
97. Active case work: 3Q2020 – 2Q2021; *Ideal Industries Lighting LLC (dba Cree Lighting) v. RAB Lighting Inc.*, ITC 337-TA-1213 (filed: 15th July 2020), (“Certain Light-emitting Diode Products, Fixtures, and Components thereof”), (retained by plaintiff Ideal Industries Lighting LLC (dba Cree Lighting) – Quinn Emanuel Urquhart an Sullivan, LLP
- a. Deposition: 1 (Cumulative total: 36)
 - b. Trial/Hearing/Court appearance: 2 (twice at the stand); (Cumulative total: 14)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: Visible GaN based LEDs and various packaging optical lens designs for directing and re-directing LED light output with applications in street lighting.
98. Active case work: 3Q2020-3Q2020; *Collect LLC, v. Samsung Electronics Co., LTD and Samsung Electronics America, Inc.*, *ex parte* declaration entitled, ‘Hand-held computers incorporating reduced area imaging devices’, for U.S. Patent 6,982,742 (control number 90/014,453), (retained by patent owner Collect LLC) – retained by Kramer Levin Naftalis & Frankel LLP
- a. Deposition: 0 (Cumulative total: 36)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 14)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: Hand-held silicon CMOS image sensors, drive electronics, smart pixels and CCD technology. Technical history of CCD v. CMOS image sensors in the 1990s and associated performance criteria.
99. Active case work: 3Q2020-3Q2020; *Collect LLC, v. Samsung Electronics Co., LTD and Samsung Electronics America, Inc.*, *ex parte* declaration entitled, ‘Communication devices incorporating reduced area imaging devices’, for U.S. Patent 6,452,626 (control number 90/014,455), (retained by patent owner Collect LLC) – retained by Kramer Levin Naftalis & Frankel LLP
- a. Deposition: 0 (Cumulative total: 36)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 14)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)

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- d. Technology: Hand-held silicon CMOS image sensors, drive electronics, smart pixels and CCD technology. Technical history of CCD v. CMOS image sensors in the 1990s and associated performance criteria.
- 100. Active case work: 4Q2020-4Q2020; *Collect LLC, v. Samsung Electronics Co., LTD and Samsung Electronics America, Inc.*, IPR declaration for U.S. Patent 9,198,565 (IPR2020-00476), (retained by patent owner Collect LLC) – retained by Kramer Levin Naftalis & Frankel LLP
 - a. Deposition: 0 (Cumulative total: 36)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 14)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: Hand-held silicon CMOS image sensors, drive electronics, smart pixels and CCD technology. Technical history of CCD v. CMOS image sensors in the 1990s and associated performance criteria.
- 101. Active case work: 4Q2020-4Q2020; *Collect LLC, v. Samsung Electronics Co., LTD and Samsung Electronics America, Inc.*, IPR declaration for U.S. Patent 9,667,896 (IPR2020-00477), (retained by patent owner Collect LLC) – retained by Kramer Levin Naftalis & Frankel LLP
 - a. Deposition: 0 (Cumulative total: 36)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 14)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: Hand-held silicon CMOS image sensors, drive electronics, smart pixels and CCD technology. Technical history of CCD v. CMOS image sensors in the 1990s and associated performance criteria.
- 102. Active case work: 4Q2020 – 1Q2021; *U.D. Electronic Corp., v. Pulse Electronics, Inc.*, 3:18-CV-00373 (Filed Fed 16th 2018), (retained by petitioner U. D. Electronic Corp.) – retained by defendant Perkins Coie LLP.
 - a. Deposition: 1 (Cumulative total: 37)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 14)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: Electrical and fiber optic connectors, panels, and distribution switches using both electronic and optoelectronic components. Noise suppression using EMI between electrical components and connectors.
- 103. Active case work: 4Q2020-4Q2020; *Collect LLC, v. Samsung Electronics Co., LTD and Samsung Electronics America, Inc.*, IPR declaration for U.S. Patent 9,186,052 (IPR2020-00512), (retained by patent owner Collect LLC) – retained by Kramer Levin Naftalis & Frankel LLP
 - a. Deposition: 1 (Cumulative total: 38)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 14)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: Hand-held silicon CMOS image sensors, drive electronics, smart pixels and CCD technology. Technical history of CCD v. CMOS image sensors in the 1990s and associated performance criteria.
- 104. Active case work: 4Q2020-4Q2020; *Collect LLC, v. Samsung Electronics Co., LTD and Samsung Electronics America, Inc.*, IPR declaration for U.S. Patent 9,186,052 (IPR2020-00475), (retained by patent owner Collect LLC) – retained by Kramer Levin Naftalis & Frankel LLP
 - a. Deposition: 1 (Cumulative total: 39)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 14)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: Hand-held silicon CMOS image sensors, drive electronics, smart pixels and CCD technology. Technical history of CCD v. CMOS image sensors in the 1990s and associated performance criteria.
- 105. Active case work: 3Q2020 – 1Q2021; *Huawei Technologies Co. Ltd. v. Verizon Communications, Inc., et al.*, 20-CV-030-JRG (TX E. D. Filed 2nd April 2020), (retained by plaintiff Huawei Technologies Co. Ltd.) – retained by plaintiff Caldwell Cassidy Curry P.C.
 - a. Deposition: 0 (Cumulative total: 39)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 14)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: Analysis of coding for fiber optic communications, specifically in relation to the standardization process for the Telecommunication Standardization Sector of the International Telecommunications Union (“ITU-T”), including the ITU-T’s G.709: Interfaces for the optical transport network standard (“G.709” or “the G.709 Standard”). In particular, the technical issues that relate to OTN hierarchy; functionality of the overhead in support of multi-wavelength optical networks; frame structures, bit rates, and formats for mapping client signals.
- 106. Active case work: 1Q2021 – 3Q2021; *IKEA et al., v. Regents of the University of California*, ITC 337-TA-1220 (filed: 29th September 2020), (“Certain filament light-emitting diodes and products containing same (II)”), (retained by respondent JDG: IKEA, Global Value Lighting, Signify, Home Depot, GE, Satco) – retained by Flaster Greenberg PC, Kirkland and Ellis, GT Law, Alston and Bird, Jones Day and Goodwin Law as JDG counsel.

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- a. Deposition: 2 (Cumulative total: 41)
 - b. Trial/Hearing/Court appearance: 1 (Cumulative total: 15)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: LED chips, LED packaging and light bulb filaments with transparent sub-mounts.
107. Active case work 4Q2020 – 1Q2021; *Uber Technologies Inc., v. Anthony Scott Levandowski*; Case No. 20-30242 (HLB) and 20-03050 (filed 16th September 2020), retained by defendant Uber Technologies Inc., retained by Jenner and Block LLP.
- a. Deposition: 0 (Cumulative total: 41)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 15)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: LIDAR technology for motor vehicles that includes fiber amplifiers, LIDAR hardware, laser diodes, photodetectors, fiber links, and free space communications.
108. Active case work: 1Q2021 – 3Q2021; *CoSemi Technologies, v. Everpro Technologies, Fibbr Technologies, Logitech, and Facebook Technologies*, ITC 337-TA-1233 (filed: 29th October 2020), “Certain active optical cables and products containing same”, (retained by claimant CoSemi Technologies) – retained by Rutan & Tucker LLP.
- a. Deposition: 1 (Cumulative total: 42)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 15)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: Active optical cables with embedded silicon modulator ICs, copper cable, fiber optic cable, VCSEL laser diodes, photodetectors and cable sheathing for consumer applications such as gaming, HDMI, USB, etc.
109. Active case work: 2Q2021 – 3Q2021; *Acuity Brands Lighting ,Inc. v. Heavy Duty Lighting (HDL), LLC.*, 20-CV-03648-SCJ (GA N. D. Filed 2nd September 2020), (retained by defendant Acuity Brands Lighting) – retained by defendant Duane Morris LLP.
- a. Deposition: 1 (Cumulative total: 43)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 15)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: LED lighting, LED chips, LED packages and LED packaging technologies such as molding, glob-top, substrates, die mounting, optical reflectors, and electrical interconnect layouts.
110. Active case work: 2Q2021 – 4Q2021; *Jiaxing Super Lighting Electric Appliance Co., LTD and Obert Inc. v. CH Lighting Technology co., LTD., Elliott Electric Supply Inc., and Shaoxing Ruising Lighting co., Ltd.*, 20-CV-00018-ADA (TX W D. Filed 16th March 2020), (retained by defendant CH Lighting et al) – retained by defendant Holland and Knight LLP.
- a. Deposition: 1 (Cumulative total: 44)
 - b. Trial/Hearing/Court appearance: 1 (Cumulative total: 16)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: LED lighting and LED packaging technologies for T8 and T12 form factor tube lighting. Technologies such as LED luminaire/tube packaging, mechanical structure, thermal heat dissipation, electronic circuitry, printed circuit boards, and LED chips.
111. Active case work: 3Q2021 – present; *ASUSTEK Computer Inc, v. KT Imaging USA LLC*, 20-CV-00300-ADA (TX W D. Filed 20th April 2020, (retained by defendant ASUSTEK Computer Inc) – retained by defendant Turner Boyd LLP.
- a. Deposition: 0 (Cumulative total: 44)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 16)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: Image sensor modules, cameras in PCs/laptops, consumer products, tear downs, optical lenses, optical packaging, optical alignment.
112. Active case work: 3Q2021 – 3Q2021; *Jiaxing Super Lighting Electric Appliance Co., LTD and Obert Inc. v. Maxlite Inc.*, 19-CV-04047 (CA C.D. Filed 8th May 2019), (retained by defendant Maxlite Inc) – retained by defendant Holland and Knight LLP.
- a. Deposition: 0 (Cumulative total: 44)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 16)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: LED lighting and LED packaging technologies for T8 and T12 form factor tube lighting. Technologies such as LED luminaire/tube packaging, mechanical structure, thermal heat dissipation, electronic circuitry, printed circuit boards, and LED chips.
113. Active case work: 3Q2021 – present; *Feit Electric Company Inc., v. Nichia Corporation*, 20-CV-00359-GW, (CA C. D. Filed 13th January 2020), (retained by defendant Feit Electric Company) – retained by Benesch Friedlander Coplan & Aronoff LLP
- a. Deposition: 0 (Cumulative total: 44)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 16)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)

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- d. Technology: LED lighting, LED chips, LED packages and LED packaging technologies such as lead-frames, molding, glob-top, substrates, die mounting, optical reflectors, and electrical interconnect layouts.
- 114. Active case work: 2Q2021 – present; *Samsung Corporation vs TBD*, Pre-patent litigation, (retained by plaintiff Samsung Corporation), - retained by Quinn Emanuel Urquhart & Sullivan, LLP).
 - a. Deposition: 0 (Cumulative total: 44)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 16)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: TV displays, OLEDs, LCDs, color gamut, and quality of RGB/white color as per CIE charts and colorimetry (NTSC, sRGB, AdobeRGB etc.,). Analysis of CHL (constant hue locus), quantum dots, nano-crystals, nano-devices, nano-structures to improve light quality output.
- 115. Active case work 2Q2021 – 2Q2021, *Holochip Corporation v. Edmund Optics, Optotune AG and others TBD*, Pre-patent litigation for ITC, (retained by plaintiff Holochip Corporation), - retained by King and Spalding LLP).
 - a. Deposition: 0 (Cumulative total: 44)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 16)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: Fluid lenses, and optical lenses with controlled focus facilities. Packaging of fluid lenses using piezoelectric actuators, and hermetic chambers. Deformable surfaces using micro-fluidics.
- 116. Active case work: 2Q2021-3Q2021; *Home Depot USA Inc., v. Lynk Labs, Inc.*, IPR declaration for U.S. Patent 10,757,783 (IPR2021-01368), (retained by petitioner Home Depot USA, Inc) – retained by DLA Piper LLP
 - a. Deposition: 0 (Cumulative total: 44)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 16)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: LED products, LED circuits, including both DC and AC circuit design. LED color emission, white light, color mixing, CIE charts, and black body radiators for color temperature.
- 117. Active case work: 2Q2021-3Q2021; *Home Depot USA Inc., v. Lynk Labs, Inc.*, IPR declaration for U.S. Patent 10,492,251 (IPR2021-01369), (retained by petitioner Home Depot USA, Inc) – retained by DLA Piper LLP
 - a. Deposition: 0 (Cumulative total: 44)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 16)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: LED products, LED circuits, including both DC and AC circuit design. LED color emission, white light, color mixing, CIE charts, and black body radiators for color temperature.
- 118. Active case work: 3Q2021-3Q2021; *Home Depot USA Inc., v. Lynk Labs, Inc.*, IPR declaration for U.S. Patent 10,091,842 (IPR2021-01540), (retained by petitioner Home Depot USA, Inc) – retained by DLA Piper LLP
 - a. Deposition: 0 (Cumulative total: 44)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 16)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: LED products, LED circuits, including both DC and AC circuit design. LED color emission, white light, color mixing, CIE charts, and black body radiators for color temperature.
- 119. Active case work: 4Q2021-4Q2021; *Home Depot USA Inc., v. Lynk Labs, Inc.*, IPR declaration for U.S. Patent 10,517,149 (IPR2022-000023), (retained by petitioner Home Depot USA, Inc) – retained by DLA Piper LLP
 - a. Deposition: 0 (Cumulative total: 44)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 16)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: LED products, LED circuits, including both DC and AC circuit design. LED color emission, white light, color mixing, CIE charts, and black body radiators for color temperature.
- 120. Active case work: 4Q2021-Present; *Everlight Elecs. Co. Ltd. v. Amazon.com, Inc. et al.*, 6:21-CV-00906 (W. D. TX filed: August 31st 2021); (retained by defendant Amazon.com) – Morrison and Foerster LLP.
 - a. Deposition: 0 (Cumulative total: 44)
 - b. Trial/Hearing/Court appearance: 1 (Cumulative total: 16)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: LED chips, LED packaging with metallic electrodes, flip-chip solder bumping, and doping of semiconductors for electrical conduction.
- 121. Active case work: 4Q2021-2Q2021; *Hanwha Solutions Corporation and affiliated companies including Q-Cells, Boviet Renewable Power, Boviet Solar, Canadian Solar International v. Advanced Silicon Group Technologies*, ITC 337-TA-1271 (filed: 14th October 2020) “Certain silicon photovoltaic cells and modules with nanostructures, and products containing the same.” (retained by joint defense group consisting of Quinn Emanuel Urquhart & Sullivan, LLP., Morgan Lewis and Bockius, LLP., and Sidley Austin LLP.).
 - a. Deposition: 2 (Cumulative total: 46)
 - b. Trial/Hearing/Court appearance: 1 (Cumulative total: 17)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: Silicon based solar/photovoltaic cells and modules that include fabrication techniques such as deposition, diffusion, wet/dry etching of nanostructures, nanowires, and nano-structures, nano-features, black silicon, monocrystalline wafers, and polysilicon fabrication.

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122. Active case work: 4Q2021-Present; *Dell Computer Inc. v. KT Imaging USA LLC*, Declaration for IPR with patent number 6,876,544 as petitioner, (to be filed), (retained by defendant Dell Computer Inc) – retained by petitioner Farella, Braun, and Martel.
 - a. Deposition: 0 (Cumulative total: 46)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 17)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: Image sensor modules, cameras in PCs/laptops, consumer products, tear downs, optical lenses, optical packaging, optical alignment.
123. Active case work: 1Q2022-2Q2022; *Cree Lighting, Wolfspeed, Ideal Industries Lighting, v. CAO Lighting*, Declaration for IPR with patent number 6,465,961 as petitioner, (filed 8th April 2022), (retained by defendant Cree Lighting) – retained by Kilpatrick Townsend & Stockton LLP.
 - a. Deposition: 0 (Cumulative total: 46)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 17)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: LED based light bulbs, LED chips, LED arrays, LED packaging, chip-on-board, heat sinks, GaN, InGa_N, AlGa_N (Gallium Nitride, Indium Gallium Nitride, Aluminum Gallium Nitride) epitaxial layers, active regions, cladding layers, optical mirrors, DBRs
124. Active case work: 1Q2022-2Q2022; *Cree Lighting, Wolfspeed, Ideal Industries Lighting, v. CAO Lighting*, Declaration for IPR with patent numbers 6,634,770 as petitioner, (filed 8th April 2022), (retained by defendant Cree Lighting) – retained by Kilpatrick Townsend & Stockton LLP.
 - a. Deposition: 0 (Cumulative total: 46)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 17)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: LED based light bulbs, LED chips, LED arrays, LED packaging, chip-on-board, heat sinks, GaN, InGa_N, AlGa_N (Gallium Nitride, Indium Gallium Nitride, Aluminum Gallium Nitride) epitaxial layers, active regions, cladding layers, optical mirrors, DBRs
125. Active case work: 1Q2022-Present; *Cree Lighting dba Ideal Industries Lighting, v. CAO Lighting*, 1:21-cv-00634 (MD NC filed 12th Aug 2021.), (retained by defendant Cree Lighting) – retained by Kilpatrick Townsend & Stockton LLP.
 - a. Deposition: 0 (Cumulative total: 46)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 17)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: LED based light bulbs, LED chips, LED arrays, LED packaging, chip-on-board, heat sinks, GaN, InGa_N, AlGa_N (Gallium Nitride, Indium Gallium Nitride, Aluminum Gallium Nitride) epitaxial layers, active regions, cladding layers, optical mirrors, DBRs
126. Active case work: 1Q2022-Present; *Lite-On Technology Corporation and Genesis Photonics Inc., v. Sensor Electronic Technology Inc., (SETi)*, 6:21-cv-00322 (WD Tex filed 12th Aug 2021.), (retained by plaintiff LiteOn and Genesis) – retained by Pillsbury Winthrop Shaw Pittman LLP.
 - a. Deposition: 0 (Cumulative total: 46)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 17)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: LED based light bulbs, LED chips, LED arrays, LED packaging, flip-chip packaging, chip-on-board, heat sinks, GaN, InGa_N, AlGa_N (Gallium Nitride, Indium Gallium Nitride, Aluminum Gallium Nitride) epitaxial layers, GaN fabrication, LED quantum well active regions, LED cladding layers, optical mirrors, DBRs
127. Active case work: 1Q2022-Present; *Lite-On Technology Corporation and Genesis Photonics Inc., v. Sensor Electronic Technology Inc., (SETi)*, Declaration for IPR (IPR2022-00395) as patent owner, (retained by plaintiff LiteOn and Genesis) – retained by Pillsbury Winthrop Shaw Pittman LLP.
 - a. Deposition: 0 (Cumulative total: 46)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 17)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: LED based light bulbs, LED chips, LED arrays, LED packaging, flip-chip packaging, chip-on-board, heat sinks, GaN, InGa_N, AlGa_N (Gallium Nitride, Indium Gallium Nitride, Aluminum Gallium Nitride) epitaxial layers, GaN fabrication, LED quantum well active regions, LED cladding layers, optical mirrors, DBRs
128. Active case work: 1Q2022-Present; *Lite-On Technology Corporation and Genesis Photonics Inc., v. Sensor Electronic Technology Inc., (SETi)*, Declaration for IPR (IPR2022-00396) as patent owner, (retained by plaintiff LiteOn and Genesis) – retained by Pillsbury Winthrop Shaw Pittman LLP.
 - a. Deposition: 0 (Cumulative total: 46)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 17)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: LED based light bulbs, LED chips, LED arrays, LED packaging, flip-chip packaging, chip-on-board, heat sinks, GaN, InGa_N, AlGa_N (Gallium Nitride, Indium Gallium Nitride, Aluminum

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- Gallium Nitride) epitaxial layers, GaN fabrication, LED quantum well active regions, LED cladding layers, optical mirrors, DBRs
129. Active case work: 1Q2022-Present; *Lite-On Technology Corporation and Genesis Photonics Inc., v. Sensor Electronic Technology Inc., (SETi)*, Declaration for IPR (IPR2022-00397) as patent owner, (retained by plaintiff LiteOn and Genesis) – retained by Pillsbury Winthrop Shaw Pittman LLP.
- a. Deposition: 0 (Cumulative total: 46)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 17)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: LED based light bulbs, LED chips, LED arrays, LED packaging, flip-chip packaging, chip-on-board, heat sinks, GaN, InGaN, AlGaIn (Gallium Nitride, Indium Gallium Nitride, Aluminum Gallium Nitride) epitaxial layers, GaN fabrication, LED quantum well active regions, LED cladding layers, optical mirrors, DBRs
130. Active case work: 1Q2022-Present; *Lite-On Technology Corporation and Genesis Photonics Inc., v. Sensor Electronic Technology Inc., (SETi)*, Declaration for IPR (IPR2022-00406) as patent owner, (retained by plaintiff LiteOn and Genesis) – retained by Pillsbury Winthrop Shaw Pittman LLP.
- a. Deposition: 0 (Cumulative total: 46)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 17)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: LED based light bulbs, LED chips, LED arrays, LED packaging, flip-chip packaging, chip-on-board, heat sinks, GaN, InGaN, AlGaIn (Gallium Nitride, Indium Gallium Nitride, Aluminum Gallium Nitride) epitaxial layers, GaN fabrication, LED quantum well active regions, LED cladding layers, optical mirrors, DBRs
131. Active case work: 1Q2022-Present; *Lite-On Technology Corporation and Genesis Photonics Inc., v. Sensor Electronic Technology Inc., (SETi)*, Declaration for IPR (IPR2022-00419) as patent owner, (retained by plaintiff LiteOn and Genesis) – retained by Pillsbury Winthrop Shaw Pittman LLP.
- a. Deposition: 0 (Cumulative total: 46)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 17)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: LED based light bulbs, LED chips, LED arrays, LED packaging, flip-chip packaging, chip-on-board, heat sinks, GaN, InGaN, AlGaIn (Gallium Nitride, Indium Gallium Nitride, Aluminum Gallium Nitride) epitaxial layers, GaN fabrication, LED quantum well active regions, LED cladding layers, optical mirrors, DBRs
132. Active case work: 1Q2022-Present; *Panasonic Corporation, v. Magna International Inc.*, 21-cv-00319 (WD Tex filed 31st Mar 2021.), (retained by plaintiff Panasonic) – retained by Sidley Austin LLP.
- a. Deposition: 0 (Cumulative total: 46)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 17)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: Automotive sensors, cameras, electronic circuitry, controls, packaging, surround view camera systems.
133. Active case work: 2Q2022 – Present; *Jiaxing Super Lighting Electric Appliance Co., LTD and Obert Inc. v. Maxlite Inc.*, 19-CV-04047 (CA C.D. Filed 8th May 2019), (retained by defendant Maxlite Inc) – retained by defendant Procopio, Cory, Hargreaves and Savitch LLP.
- a. Deposition: 0 (Cumulative total: 46)
 - b. Trial/Hearing/Court appearance: 0 (Cumulative total: 17)
 - c. IPR/PTAB trial/deposition: 0 (Cumulative total: 6)
 - d. Technology: LED lighting and LED packaging technologies for T8 and T12 form factor tube lighting. Technologies such as LED luminaire/tube packaging, mechanical structure, thermal heat dissipation, electronic circuitry, printed circuit boards, and LED chips.
 - e.
 - f.
 - g.

PUBLISHED PATENT APPLICATIONS:

As per USPTO website are *recent* published patent applications:

PUB. APP. NO.	Title
1	20210141251 ACTIVE REGION-LESS MODULATOR AND METHOD
2	20210141250 ACTIVE REGION-LESS MODULATOR AND METHOD
3	20210005720 ELECTRONIC DEVICE WITH 2-DIMENSIONAL ELECTRON GAS BETWEEN POLAR-ORIENTED RARE-EARTH OXIDE LAYER GROWN OVER A SEMICONDUCTOR
4	20200285085 DIRECT DRIVE REGION-LESS POLYMER MODULATOR METHODS OF FABRICATING AND MATERIALS THEREFOR

As per USPTO website 80 patent applications that have been published:










PUB. APP. NO.	Title
1	20200183245 ELECTRO-OPTIC POLYMER DEVICES HAVING HIGH PERFORMANCE CLADDINGS, AND METHODS OF PREPARING THE SAME
2	20200183201 ACTIVE REGION-LESS POLYMER MODULATOR INTEGRATED ON A COMMON PIC PLATFORM AND METHOD
3	20200161417 III-N TO RARE EARTH TRANSITION IN A SEMICONDUCTOR STRUCTURE
4	20200150363 CONDUCTIVE MULTI-FIBER/PORT HERMETIC CAPSULE AND METHOD
5	20200119516 HERMETIC CAPSULE AND METHOD
6	20200091398 JOSEPHSON JUNCTION USING MOLECULAR BEAM EPITAXY
7	20200088941 PROTECTION LAYERS FOR POLYMER MODULATORS/WAVEGUIDES
8	20200088939 GUIDE TRANSITION DEVICE AND METHOD
9	20200083668 GUIDE TRANSITION DEVICE WITH DIGITAL GRATING DEFLECTORS AND METHOD
10	20190353843 FABRICATION PROCESS OF POLYMER BASED PHOTONIC APPARATUS AND THE APPARTUS
11	20190305039 EPITAXIAL AIN/cREO STRUCTURE FOR RF FILTER APPLICATIONS
12	20190278036 EMBEDDED HERMETIC CAPSULE AND METHOD
13	20190237930 HERMETIC CAPSULE AND METHOD
14	20190227233 RE-based Integrated Photonic and Electronic Layered Structures
15	20190221993 POROUS DISTRIBUTED BRAGG REFLECTORS FOR LASER APPLICATIONS
16	20190204506 PROTECTION LAYERS FOR POLYMER MODULATORS/WAVEGUIDES

17	<u>20190172923</u>	<u>Integrated Epitaxial Metal Electrodes</u>
18	<u>20190148913</u>	<u>GUIDE TRANSITION DEVICE WITH DIGITAL GRATING DEFLECTORS AND METHOD</u>
19	<u>20190139761</u>	<u>Pnictide Buffer Structures and Devices for GaN Base Applications</u>
20	<u>20190122885</u>	<u>GROUP III SEMICONDUCTOR EPITAXY FORMED ON SILICON VIA SINGLE CRYSTAL REN AND REO BUFFER LAYERS</u>
21	<u>20190079243</u>	<u>GUIDE TRANSITION DEVICE AND METHOD</u>
22	<u>20190074365</u>	<u>Integrated Epitaxial Metal Electrodes</u>
23	<u>20190064436</u>	<u>POLYMER MODULATOR AND LASER INTEGRATED ON A COMMON PLATFORM AND METHOD</u>
24	<u>20190028081</u>	<u>LAYER STRUCTURES FOR RF FILTERS FABRICATED USING RARE EARTH OXIDES AND EPITAXIAL ALUMINUM NITRIDE</u>
25	<u>20180259798</u>	<u>DIRECT-DRIVE POLYMER MODULATOR METHODS OF FABRICATING AND MATERIALS THEREFOR</u>
26	<u>20180138284</u>	<u>Integrated Epitaxial Metal Electrodes</u>
27	<u>20180013053</u>	<u>Josephson Junction using Molecular Beam Epitaxy</u>
28	<u>20180012858</u>	<u>RARE EARTH INTERLAYS FOR MECHANICALLY LAYERING DISSIMILAR SEMICONDUCTOR WAFERS</u>
29	<u>20170353002</u>	<u>Rare Earth Pnictides for Strain Management</u>
30	<u>20170141750</u>	<u>LAYER STRUCTURES FOR RF FILTERS FABRICATED USING RARE EARTH OXIDES AND EPITAXIAL ALUMINUM NITRIDE</u>
31	<u>20160133708</u>	<u>STRAIN COMPENSATED REO BUFFER FOR III-N ON SILICON</u>
32	<u>20150014676</u>	<u>III-N MATERIAL GROWN ON REN EPITAXIAL BUFFER ON Si SUBSTRATE</u>
33	<u>20140357014</u>	<u>HIGH EFFICIENCY SOLAR CELL USING IIIB MATERIAL TRANSITION LAYERS</u>
34	<u>20140239307</u>	<u>REO GATE DIELECTRIC FOR III-N DEVICE ON Si SUBSTRATE</u>
35	<u>20140231818</u>	<u>AIN CAP GROWN ON GaN/REO/SILICON SUBSTRATE STRUCTURE</u>
36	<u>20140231817</u>	<u>III-N MATERIAL GROWN ON ALO/ALN BUFFER ON Si SUBSTRATE</u>
37	<u>20140225123</u>	<u>REO/ALO/AIN TEMPLATE FOR III-N MATERIAL GROWTH ON SILICON</u>
38	<u>20140167057</u>	<u>REO/ALO/AIN TEMPLATE FOR III-N MATERIAL GROWTH ON SILICON</u>
39	<u>20140077339</u>	<u>DELTA DOPING AT Si-Ge INTERFACE</u>
40	<u>20140077338</u>	<u>Si-Ge-Sn ON REO TEMPLATE</u>
41	<u>20140077240</u>	<u>IV MATERIAL PHOTONIC DEVICE ON DBR</u>
42	<u>20140076390</u>	<u>III-V SEMICONDUCTOR INTERFACE WITH GRADED GeSn ON SILICON</u>
43	<u>20140053894</u>	<u>GRADED GeSn ON SILICON</u>
44	<u>20140008644</u>	<u>OXYGEN ENGINEERED SINGLE-CRYSTAL REO TEMPLATE</u>
45	<u>20130334536</u>	<u>SINGLE-CRYSTAL REO BUFFER ON AMORPHOUS SiO_x</u>
46	<u>20130248853</u>	<u>NUCLEATION OF III-N ON REO TEMPLATES</u>
47	<u>20130214282</u>	<u>III-N ON SILICON USING NANO STRUCTURED INTERFACE LAYER</u>
48	<u>20130153918</u>	<u>REO-Si TEMPLATE WITH INTEGRATED REO LAYERS FOR LIGHT EMISSION</u>

49	<u>20130099357</u>	<u>STRAIN COMPENSATED REO BUFFER FOR III-N ON SILICON</u>
50	<u>20130071960</u>	<u>INTEGRATED RARE EARTH DEVICES</u>
51	<u>20130062610</u>	<u>LATTICE MATCHED CRYSTALLINE REFLECTOR</u>
52	<u>20130062609</u>	<u>III-N FET ON SILICON USING FIELD SUPPRESSING REO</u>
53	<u>20130032858</u>	<u>RARE EARTH OXY-NITRIDE BUFFERED III-N ON SILICON</u>
54	<u>20120280276</u>	<u>Single Crystal Ge On Si</u>
55	<u>20120256232</u>	<u>Multilayer Rare Earth Device</u>
56	<u>20120183767</u>	<u>HEXAGONAL REO TEMPLATE BUFFER FOR III-N LAYERS ON SILICON</u>
57	<u>20120147906</u>	<u>LASER COOLING OF MODIFIED SOI WAFER</u>
58	<u>20120145243</u>	<u>SOLAR CELLS WITH MAGNETICALLY ENHANCED UP-CONVERSION</u>
59	<u>20120104567</u>	<u>IIIOxNy ON REO/Si</u>
60	<u>20120104443</u>	<u>IIIOxNy ON SINGLE CRYSTAL SOI SUBSTRATE AND III n GROWTH PLATFORM</u>
61	<u>20120090672</u>	<u>REO-Ge Multi-Junction Solar Cell</u>
62	<u>20120085399</u>	<u>REO-Ge Multi-Junction Solar Cell</u>
63	<u>20120073648</u>	<u>Photovoltaic conversion using rare earths plus Group IV Sensitizers</u>
64	<u>20120019902</u>	<u>INTERGRATED PUMP LASER AND RARE EARTH WAVEGUIDE AMPLIFIER</u>
65	<u>20110290313</u>	<u>SOLAR CELLS WITH ENGINEERED SPECTRAL CONVERSION</u>
66	<u>20110220173</u>	<u>ACTIVE SOLAR CONCENTRATOR WITH MULTI-JUNCTION DEVICES</u>
67	<u>20110203666</u>	<u>HIGH EFFICIENCY SOLAR CELL USING IIIB MATERIAL TRANSITION LAYERS</u>
68	<u>20110188533</u>	<u>INTEGRATED RARE EARTH DEVICES</u>
69	<u>20110108908</u>	<u>MULTILAYERED BOX IN FDSOI MOSFETS</u>
70	<u>20100122720</u>	<u>Passive Rare Earth Tandem Solar Cell</u>
71	<u>20100116315</u>	<u>Active rare earth tandem solar cell</u>
72	<u>20100112736</u>	<u>FULL COLOR DISPLAY</u>
73	<u>20100109047</u>	<u>Multijunction rare earth solar cell</u>
74	<u>20100084680</u>	<u>SPONTANEOUS/STIMULATED LIGHT EMITTING .mu.-CAVITY DEVICE</u>
75	<u>20090291535</u>	<u>STACKED TRANSISTORS AND PROCESS</u>
76	<u>20080135924</u>	<u>Multilayered box in FDSOI MOSFETS</u>
77	<u>20080093670</u>	<u>SIGNAL AND/OR GROUND PLANES WITH DOUBLE BURIED INSULATOR LAYERS AND FABRICATION PROCESS</u>
78	<u>20070018203</u>	<u>Strain inducing multi-layer cap</u>
79	<u>20070018166</u>	<u>Stacked transistors and process</u>
80	<u>20060246691</u>	<u>Signal and/or ground planes with double buried insulator layers and fabrication process</u>









PATENTS ISSUED:

As per the USPTO website the following are *recent* utility patents:

PAT. NO.		Titl e	
1	11,201,451		Porous distributed Bragg reflectors for laser applications
2	11,201,278		Josephson Junction using molecular beam epitaxy
3	11,067,748		Guide transition device and method
4	11,063,114		III-N to rare earth transition in a semiconductor structure
5	11,042,051		Direct drive region-less polymer modulator methods of fabricating and materials therefor
6	10,989,871		Protection layers for polymer modulators/waveguides
7	10,886,694		Hermetic capsule and method
8	10,825,912		Integrated epitaxial metal electrodes
9	10,754,093		Fabrication process of polymer based photonic apparatus and the apparatus

As per the USPTO website the following are 230 utility patents issued:

PAT. NO.		Titl e	
1	10,615,141		Pnictide buffer structures and devices for GaN base applications
2	10,605,987		Re-based integrated photonic and electronic layered structures
3	10,591,755		Direct-drive polymer modulator methods of fabricating and materials therefor
4	10,574,025		Hermetic capsule and method for a monolithic photonic integrated circuit
5	10,573,686		Epitaxial AlN/cREO structure for RF filter applications
6	10,566,944		Layer structures for RF filters fabricated using rare earth oxides and epitaxial aluminum nitride
7	10,527,786		Polymer modulator and laser integrated on a common platform and method
8	10,520,673		Protection layers for polymer modulators/waveguides
9	10,511,146		Guide transition device with digital grating deflectors and method
10	10,509,164		Guide transition device and method
11	10,431,729		Josephson junction using molecular beam epitaxy
12	10,332,857		Rare earth pnictides for strain management

13	10,162,111		Multi-fiber/port hermetic capsule sealed by metallization and method
14	10,128,350		Integrated epitaxial metal electrodes
15	10,075,143		Layer structures for RF filters fabricated using rare earth oxides and epitaxial aluminum nitride
16	9,496,132		Nucleation of III-N on REO templates
17	9,443,939		Strain compensated REO buffer for III-N on silicon
18	9,236,249		III-N material grown on REN epitaxial buffer on Si substrate
19	9,105,471		Rare earth oxy-nitride buffered III-N on silicon
20	8,889,978		III-V semiconductor interface with graded GeSn on silicon
21	8,878,188		REO gate dielectric for III-N device on Si substrate
22	8,872,308		AlN cap grown on GaN/REO/silicon substrate structure
23	8,835,955		III_O.sub.xN.sub.y on single crystal SOI substrate and III n growth platform
24	8,823,055		REO/ALO/AlN template for III-N material growth on silicon
25	8,823,025		III-N material grown on AlO/AlN buffer on Si substrate
26	8,794,010		Laser cooling of modified SOI wafer
27	8,748,900		Re-silicide gate electrode for III-N device on Si substrate
28	8,680,507		AlN inter-layers in III-N material grown on DBR/silicon substrate
29	8,637,763		Solar cells with engineered spectral conversion
30	8,636,844		Oxygen engineered single-crystal REO template
31	8,633,569		AlN inter-layers in III-N material grown on REO/silicon substrate
32	8,623,747		Silicon, aluminum oxide, aluminum nitride template for optoelectronic and power devices
33	8,559,097		Integrated pump laser and rare earth waveguide amplifier
34	8,553,741		Integrated rare earth devices
35	8,542,437		Earth abundant photonic structures
36	8,501,635		Modification of REO by subsequent III-N EPI process
37	8,455,756		High efficiency solar cell using IIIB material transition layers
38	8,394,194		Single crystal reo buffer on amorphous SiO₂.sub.x
39	8,331,413		Integrated rare earth devices
40	8,331,410		Spontaneous/stimulated light emitting .mu.-cavity device
41	8,049,100		Multijunction rare earth solar cell
42	8,039,738		Active rare earth tandem solar cell
43	8,039,737		Passive rare earth tandem solar cell
44	7,968,384		Stacked transistors and process
45	7,967,653		Full color display
46	7,821,066		Multilayered BOX in FDSOI MOSFETS
47	7,643,526		Spontaneous/stimulated light emitting .mu.-cavity device


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48	7,605,531	T	Full color display including LEDs with rare earth active areas and different radiative transistions
49	7,579,623	T	Stacked transistors and process
50	7,538,016	T	Signal and/or ground planes with double buried insulator layers and fabrication process
51	7,388,230	T	Selective colored light emitting diode
52	7,365,357	T	Strain inducing multi-layer cap
53	7,355,269	T	IC on non-semiconductor substrate
54	7,323,396	T	Signal and/or ground planes with double buried insulator layers and fabrication process
55	6,999,644	T	Discrete optoelectric package
56	6,966,703	T	Self eject latch mechanism for an optical transceiver module
57	6,795,461	T	Optoelectric module
58	6,663,296	T	Optoelectric module
59	6,412,989	T	Directable laser transmission module
60	6,243,056	T	Transceiver with miniature virtual image display
61	6,228,440	T	Perishable media information storage mechanism and method of fabrication
62	6,161,106	T	Perishable media system and method of operation
63	6,158,884	T	Integrated communicative watch
64	6,156,582	T	Method of fabricating top emitting ridge VCSEL with self-aligned contact and sidewall reflector
65	6,131,017	T	Dual system portable electronic communicator
66	6,122,023	T	Non-speckle liquid crystal projection display
67	6,121,068	T	Long wavelength light emitting vertical cavity surface emitting laser and method of fabrication
68	6,115,618	T	Portable electronic device with removable display
69	6,111,839	T	Optical pickup head including a coherent first order mode laser light source
70	6,097,748	T	Vertical cavity surface emitting laser semiconductor chip with integrated drivers and photodetectors and method of fabrication
71	6,097,528	T	Microscanner for portable laser diode displays
72	6,096,666	T	Holographic textile fiber
73	6,091,754	T	VCSEL having integrated photodetector for automatic power control
74	6,084,697	T	Integrated electro-optical package
75	6,080,690	T	Textile fabric with integrated sensing device and clothing fabricated thereof
76	6,069,593	T	Display carrier and electronic display control for multiple displays in a portable electronic device
77	6,064,780	T	Interconnect substrate with a single contact accessible in an upper and an end surface
78	6,061,485	T	Method for wavelength division multiplexing utilizing donut mode vertical cavity surface emitting lasers

79	6,061,380	T	Vertical cavity surface emitting laser with doped active region and method of fabrication
80	6,029,073	T	Display carrier with binocular viewing for a portable electronic device
81	6,026,111	T	Vertical cavity surface emitting laser device having an extended cavity
82	6,022,760	T	Integrated electro-optical package and method of fabrication
83	6,021,147	T	Vertical cavity surface emitting laser for high power single mode operation and method of fabrication
84	6,021,146	T	Vertical cavity surface emitting laser for high power single mode operation and method of fabrication
85	6,008,067	T	Fabrication of visible wavelength vertical cavity surface emitting laser
86	5,978,398	T	Long wavelength vertical cavity surface emitting laser
87	5,974,071	T	VCSEL with integrated photodetectors for automatic power control and signal detection in data storage
88	5,966,399	T	Vertical cavity surface emitting laser with integrated diffractive lens and method of fabrication
89	5,959,315	T	Semiconductor to optical link
90	5,956,364	T	Vertical cavity surface emitting laser with shaped cavity mirror and method of fabrication
91	5,956,363	T	Long wavelength vertical cavity surface emitting laser with oxidation layers and method of fabrication
92	5,953,355	T	Semiconductor laser package with power monitoring system
93	5,946,121	T	IrDA data link with VCSEL light source
94	5,943,359	T	Long wavelength VCSEL
95	5,943,357	T	Long wavelength vertical cavity surface emitting laser with photodetector for automatic power control and method of fabrication
96	5,939,773	T	Semiconductor laser package including a lead frame and plastic resin housing
97	5,936,929	T	Optical submodule and method for making
98	5,923,696	T	Visible light emitting vertical cavity surface emitting laser with gallium phosphide contact layer and method of fabrication
99	5,914,973	T	Vertical cavity surface emitting laser for high power operation and method of fabrication
100	5,906,004	T	Textile fabric with integrated electrically conductive fibers and clothing fabricated thereof
101	5,905,750	T	Semiconductor laser package and method of fabrication
102	5,903,586	T	Long wavelength vertical cavity surface emitting laser
103	5,898,722	T	Dual wavelength monolithically integrated vertical cavity surface emitting lasers and method of fabrication
104	5,886,972	T	Recording information in a phase change optical medium with a vertical cavity surface emitting laser
105	5,883,912	T	Long wavelength VCSEL

106	5,881,084	T	Semiconductor laser for package with power monitoring system
107	5,848,086	T	Electrically confined VCSEL
108	5,838,707	T	Ultraviolet/visible light emitting vertical cavity surface emitting laser and method of fabrication
109	5,838,703	T	Semiconductor laser package with power monitoring system and optical element
110	5,835,521	T	Long wavelength light emitting vertical cavity surface emitting laser and method of fabrication
111	5,831,960	T	Integrated vertical cavity surface emitting laser pair for high density data storage and method of fabrication
112	5,821,571	T	Dual sided integrated electro-optical package
113	5,818,404	T	Integrated electro-optical package
114	5,815,524	T	VCSEL including GaTIP active region
115	5,796,769	T	Red light vertical cavity surface emitting laser
116	5,789,733	T	Smart card with contactless optical interface
117	5,774,486	T	Waveguide power monitoring system for vertical cavity surface emitting lasers
118	5,764,671	T	VCSEL with selective oxide transition regions
119	5,757,836	T	Vertical cavity surface emitting laser with laterally integrated photodetector
120	5,757,829	T	Flip chip power monitoring system for vertical cavity surface emitting lasers
121	5,757,741	T	CD ROM head with VCSEL or VCSEL array
122	5,751,757	T	VCSEL with integrated MSM photodetector
123	5,751,471	T	Switchable lens and method of making
124	5,748,665	T	Visible VCSEL with hybrid mirrors
125	5,748,161	T	Integrated electro-optical package with independent menu bar
126	5,742,630	T	VCSEL with integrated pin diode
127	5,741,724	T	Method of growing gallium nitride on a spinel substrate
128	5,739,800	T	Integrated electro-optical package with LED display chip and substrate with drivers and central opening
129	5,732,103	T	Long wavelength VCSEL
130	5,719,893	T	Passivated vertical cavity surface emitting laser
131	5,719,892	T	Hybrid mirror structure for a visible emitting VCSEL
132	5,710,441	T	Microcavity LED with photon recycling
133	5,708,280	T	Integrated electro-optical package and method of fabrication
134	5,706,306	T	VCSEL with distributed Bragg reflectors for visible light
135	5,703,664	T	Integrated electro-optic package for reflective spatial light modulators
136	5,699,073	T	Integrated electro-optical package with carrier ring and method of fabrication
137	5,661,075	T	Method of making a VCSEL with passivation
138	5,654,228	T	VCSEL having a self-aligned heat sink and method of making

139	5,644,369		Switchable lens/diffuser
140	5,638,392		Short wavelength VCSEL
141	5,636,298		Coalescing optical module and method for making
142	5,633,886		Short wavelength VCSEL with Al-free active region
143	5,625,734		Optoelectronic interconnect device and method of making
144	5,574,744		Optical coupler
145	5,563,900		Broad spectrum surface-emitting led
146	5,557,626		Patterned mirror VCSEL with adjustable selective etch region
147	5,555,341		Waveguide with an electrically conductive channel
148	5,550,941		Optoelectronic interface module
149	5,546,413		Integrated light emitting device
150	5,545,359		Method of making a plastic molded optoelectronic interface
151	5,543,958		Integrated electro-optic package for reflective spatial light modulators
152	5,540,799		Method of fabricating optical waveguide from a laminate
153	5,539,554		Integrated electro-optic package for reflective spatial light
154	5,539,200		Integrated optoelectronic substrate
155	5,538,919		Method of fabricating a semiconductor device with high heat conductivity
156	5,534,888		Electronic book
157	5,530,715		Vertical cavity surface emitting laser having continuous grading
158	5,521,992		Molded optical interconnect
159	5,517,348		Voltage controlled transparent layer for a bi-directional device
160	5,511,138		Interlocking waveguide and method of making
161	5,498,883		Superluminescent edge emitting device with apparent vertical light emission and method of making
162	5,493,437		External communication link for a credit card pager
163	5,491,491		Portable electronic equipment with binocular virtual display
164	5,486,946		Integrated electro-optic package for reflective spatial light modulators
165	5,485,318		Dual image manifestation apparatus with integrated electro-optical package
166	5,482,891		VCSEL with an intergrated heat sink and method of making
167	5,482,658		Method of making an optoelectronic interface module
168	5,478,774		Method of fabricating patterned-mirror VCSELs using selective growth
169	5,473,716		Fiber bundle interconnect and method of making same
170	5,469,185		Remote sensory unit and driver
171	5,468,656		Method of making a VCSEL
172	5,468,582		Fused optical layer and method of making
173	5,467,215		Integrated electro-optic package for reflective spatial light modulators

174	5,466,633		Optical reading head and method for making same
175	5,452,387		Coaxial optoelectronic mount and method of making same
176	5,446,752		VCSEL with current blocking layer offset
177	5,437,092		Method of making contact areas on an optical waveguide
178	5,432,809		VCSEL with Al-free cavity region
179	5,432,630		Optical bus with optical transceiver modules and method of manufacture
180	5,428,704		Optoelectronic interface and method of making
181	5,422,901		Semiconductor device with high heat conductivity
182	5,416,870		Optoelectronic interface device and method with reflective surface
183	5,408,547		Optical read/write head
184	5,400,423		Molded star coupler and method of making same
185	5,400,352		Semiconductor laser and method therefor
186	5,390,275		Molded waveguide and method for making same
187	5,389,312		Method of fabricating molded optical waveguides
188	5,388,120		VCSEL with unstable resonator
189	5,369,529		Reflective optoelectronic interface device and method of making
190	5,369,415		Direct retinal scan display with planar imager
191	5,367,593		Optical/electrical connector and method of fabrication
192	5,361,317		Assembly with fixture aligning and affixing an optical fiber to an optical device
193	5,359,686		Interface for coupling optical fibers to electronic circuitry
194	5,359,669		Remote retinal scan identifier
195	5,359,618		High efficiency VCSEL and method of fabrication
196	5,358,880		Method of manufacturing closed cavity LED
197	5,351,331		Method and apparatus for splicing optical fibers with signal I/O
198	5,351,257		VCSEL with vertical offset operating region providing a lateral waveguide and current limiting and method of fabrication
199	5,349,210		Optical reading head with angled array
200	5,348,616		Method for patterning a mold
201	5,345,530		Molded waveguide and method for making same
202	5,345,527		Intelligent opto-bus with display
203	5,345,524		Optoelectronic transceiver sub-module and method for making
204	5,337,397		Optical coupling device and method for making
205	5,337,391		Optoelectronic sub-module and method of making same
206	5,335,300		Method of manufacturing I/O node in an optical channel waveguide and apparatus for utilizing
207	5,325,451		Modular optical waveguide and method for making

208	5,324,964		Superluminescent surface light emitting device
209	5,323,477		Contact array imager with integral waveguide and electronics
210	5,313,545		Molded waveguide with a unitary cladding region and method of making
211	5,309,537		Optoelectronic coupling device and method of making
212	5,286,982		High contrast ratio optical modulator
213	5,282,071		Contact areas on an optical waveguide and method of making
214	5,276,762		Magnetic holding methods for optical fiber I/O assembly
215	5,276,754		Optoelectronic mount and method for making
216	5,271,083		Molded optical waveguide with contacts utilizing leadframes and method of making same
217	5,265,184		Molded waveguide and method for making same
218	5,249,245		Optoelectronic mount including flexible substrate and method for making same
219	5,230,030		Interface coupling electronic circuitry
220	5,228,101		Electrical to optical links using metalization
221	5,225,816		Electrical connector with display
222	5,218,465		Intelligent interconnects for broadband optical networking
223	5,172,384		Low threshold current laser
224	5,170,448		Optical waveguide apparatus and method for partially collecting light
225	5,125,054		Laminated polymer optical waveguide interface and method of making same
226	5,116,461		Method for fabricating an angled diffraction grating
227	5,068,007		Etching of materials in a noncorrosive environment
228	5,067,829		Dynamic optical beam steering
229	5,045,908		Vertically and laterally illuminated p-i-n photodiode
230	5,034,092		Plasma etching of semiconductor substrates

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 53. Taylor, G.W.; Crawford, D.L.; Kiely, P.A.; Cooke, P.; Sargood, S.; Izabelle, A.; Chang, T.Y.; Tell, B.; **Lebby, M.S.**; Brown-Goebeler, K.; Simmons, J.G., "An inversion channel

- technology for opto-electronic integration,” Proceedings of the SPIE - The International Society for Optical Engineering, vol. 994 , pp. 251-7, 1989.
54. Taylor, G.W.; Kiely, P.A.; Isabelle, A.; Crawford, D.L.; **Lebby, M.S.**; Chang, T.-Y.; Tell, B.; Goebeler, K.B.; Simmons, J.G., “An n-channel BICFET in the GaAs/AlGaAs material system,” IEEE Electron Device Letters, vol. 10, no. 2, pp. 88-90, Feb. 1989.
 55. G. W. Taylor, **M. S. Lebby**, T. Y. Chang, R. P. Gnall, N. Sauer, B. Tell, and J. G. Simmons, “ Very High Transconductance HFET”, *IEEE International Electron Devices Conference and Proceedings*, LA, Dec 1988.
 56. Crawford, D.L.; Taylor, G.W.; Kiely, P.A.; Cooke, P.; Isabelle, A.; Chang, T.Y.; Tell, B.; **Lebby, M.S.**; Brown-Goebeler, K.; Simmons, J.G., “An inversion channel technology for opto-electronic integration,” Fourteenth European Conference on Optical Communication, No. 292, vol. 1, pp. 211-14, Sept. 1988.
 57. Taylor, G.W.; **Lebby, M.S.**; Kiely, P.A.; Cooke, P.; Isabelle, A.; Chang, T.Y.; Tell, B.; Crawford, D.L.; Brown-Goebeler, K.; Simmons, J.G., “Performance and advantages of BICFETs versus HBTs,” Proceedings of the 1988 Bipolar Circuits and Technology Meeting, pp. 41-5, Sept. 1988.
 58. Taylor, G.W.; Crawford, D.L.; Kiely, P.A.; Sargood, S.K.; Cooke, P.; Isabelle, A.; Chang, T.Y.; Tell, B.; **Lebby, M.S.**; Brown-Goebeler, K.; Simmons, J.G., “GaAs/AlGaAs inversion channel devices for an integrated opto-electronic technology,” IEEE Transactions on Electron Devices, vol. 35, no. 12, pp. 2446, June 1988.
 59. **Lebby, M.S.**; Taylor, G.W.; Isabelle, A.; Tell, B.; Brown-Goebeler, K.; Chang, T.-Y.; Simmons, J.G., “A p-channel BICFET in the InGaAs/InAlAs material system,” IEEE Electron Device Letters, vol. 9 , no. 6 , pp. 278-80, June 1988.
 60. Taylor, G.W.; **Lebby, M.S.**; Isabelle, A.; Tell, B.; Brown-Goebeler, K.; Chang, T.-Y.; Simmons, J.G., “Demonstration of a p-channel GaAs/AlGaAs BICFET,” IEEE Electron Device Letters, vol. 9, no.2, pp.84-6, Feb. 1988.
 61. Taylor, Geoffrey; **Lebby, M S**; Isabelle, A; Tell, B; Brown-Goebeler, K., “Demonstration of a p-channel GaAs/AlGaAs BICFET (Bipolar Inversion- Channel),” IEEE Electron Device Letters, vol. 9, pp. 84-86, Feb. 1988.
 62. **Lebby, Michael Stephen**, “Fabrication And Characterisation Of The Heterojunction Field Effect Transistor (Hfet) And The Bipolar Inversion Channel Field Effect Transistor (Bicfet): Characterisation Of Hfets And Bicfets, Fabricated From Gallium-Arsenide/Aluminum-Gallium - Arsenide With Magnetron Ion Etching, Sputtered Tungsten Gates, Ion Implanted Source/Drain Contacts And Rapid Thermal Anneals,” University Of Bradford, UK, 1987.
 63. Taylor, G.W.; **Lebby, M.S.**; Chang, T.Y.; Gnall, R.N.; Sauer, N.; Tell, B.; Simmons, J.G., “GaAs/AlGaAs inversion channel devices for an integrated opto-electronic technology,” Electronics Letters, vol. 23, no. 2, pp. 77-9, Jan. 1987.
 64. Taylor, G.W.; **Lebby, M.S.**; Chang, T.Y.; Gnall, R.N.; Sauer, N.; Tell, B.; Tennant, D.M.; Simmons, J.G., “A new heterostructure FET,” International Electron Devices Meeting 1986. Technical Digest, pp. 817-21, Dec. 1986.

PUBLIC MEDIA (Books, Chapters, Reports, Abstracts, Videos, Lectures, Speeches, Reviews, Courses, Talks, Invited Talks, Keynote Talks, Plenary Talks, Webinars, Interviews, Articles, etc.)

- 1) Reviewer: European Commission ICT-29-2016: Photonics KET 2016 (section a(ii) Breakthrough in miniaturization of SSL light engines and systems)
 - a. 5th Nov 2016
 - b. <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5094-ict-29-2016.html>
- 2) Keynote speech: Next decade in fiber optic communications
 - a. 30th Apr 2001
 - b. Electronicast: 13th Annual Fiber Optics for the Next Decade Conference
 - c. <http://www.photonics.com/Article.aspx?AID=8916>
- 3) Keynote speech: "Business and Technical Perspectives for Optical Networking"
 - a. 14th Jul 2002
 - b. PhoPack 2002 Stanford University
 - c. http://www.accessmylibrary.com/coms2/summary_0286-25792277_ITM
- 4) Talk and abstract: RIE and MIE comparison for optoelectronic integrated circuit processing
 - a. Nov 1988
 - b. IEEE LEOS Conference, Santa Clara, California
 - c. http://books.google.com/books/about/LEOS_88.html?id=LUS0cQAACAAJ
- 5) Reviewer: European Commission ICT-29-2016: Photonics KET 2016 (a(iii) Pervasive high-specificity and high-sensitivity sensing for a safer environment)
 - a. 12th May 2016
 - b. European Commission
 - c. <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5094-ict-29-2016.html>
- 6) Paper: Study of the Structural and Thermal Properties of Single Crystalline Epitaxial Rare-Earth-Metal Oxide Layers Grown on Si(111)
 - a. 2011
 - b. ECS Transactions 16, 161 (2011)
 - c. <http://ecst.ecsdl.org/content/41/3/161>
- 7) Invited talk and abstract: Use of VCSELs for the MONSOON parallel digital computer
 - a. Jan 1991
 - b. International workshop on architectures for free-space digital computing, Colorado.
- 8) Invited talk and abstract: VCSEL Technology and Progress
 - a. 1993
 - b. IEEE Waves and Devices, Phoenix Section, Tempe, Arizona, Arizona State University
- 9) Paper: An inversion channel technology for opto-electronic integration
 - a. Sep 1988

- b. "Optical Communication, 1988. (ECOC 88). Fourteenth European Conference on (Conf. Publ. No.292), Publication Year: 1988, Page(s): 211 - 214 vol.1"
 - c. <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=93560>
- 10) Invited Talk/Panel session: EPIC technology workshop on Photonic Integrated Circuits (PIC) packaging standardization
 - a. 18th Jun 2014
 - b. EPIC
 - c. <http://epic-assoc.com/contact-us/?at=94>
- 11) Invited talk and abstract: Packaging VCSELs with GUIDECAS(TM) an overmolded waveguide packaging platform
 - a. Aug/1994
 - b. IEEE Tropical workshop on optoelectronic packaging, Breckenridge, Colorado
- 12) Invited talk/keynote lecture: Compound semiconductors driving photonics technologies to become the future for high-speed communications through integration, performance, and sustainability
 - a. 12th Jun 2014
 - b. Glyndwr University, Wales, UK
 - c. <http://www.glyndwr.ac.uk/en/AboutGlyndwrUniversity/Newsandmediacentre/Newsarchive/PressReleases2014/UniWeek/>
- 13) Invited talk and abstract: Ridge waveguide VCSELs: improvement over planar VCSELs
 - a. May/1994
 - b. USA Laser workshop, CLEO, Baltimore, MD
- 14) Special invited talk: "10 Grand Challenges in Photonics"
 - a. 31st Oct 2007
 - b. Sixth annual symposium UNCC Optoelectronics Center
 - c. <http://opticscenter.uncc.edu/node/265>
- 15) Keynote talk: Entitled "The rise of PIC based technologies over the next decade and how datacenters and telecom may enable other exciting applications"
 - a. 1st May 2017
 - b. Xilinx as part of their; "Xilinx silicon technology series seminars"
 - c. <http://www.xilinx.com>
- 16) Invited talk: Worldwide Optoelectronic Trends and Economic Opportunities.
 - a. 18th Nov 2005
 - b. UNCC 4th Annual symposium: UNC Charlotte Center for Optoelectronics and Optical Communications
 - c. <http://opticscenter.uncc.edu/node/275>
- 17) Reviewer: European Commission ICT-29-2016: Photonics KET 2016 (section a(i) Biophotonics: advanced imaging for in-depth disease diagnosis)
 - a. 10th May 2016
 - b. European Commission
 - c. <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5094-ict-29-2016.html>
- 18) Invited talk: Global optoelectronics technology roadmaps and trends

- a. 27th Oct 2006
 - b. UNCC 5th Annual Symposium: UNC Charlotte Center for Optoelectronics and Optical Communications
 - c. <http://opticscenter.uncc.edu/node/268>
- 19) Keynote talk: Global optoelectronics and green photonics trends
- a. 28th Oct 2009
 - b. UNCC 8th Annual Symposium: Optoelectronics Center
 - c. <http://opticscenter.uncc.edu/node/255>
- 20) Invited talk and abstract: Optoelectronic Devices and Applications
- a. 1993
 - b. IEEE workshop on optical interconnects
- 21) Reviewer: European Commission ICT-29-2016 Photonics KET (b) Innovation Actions
- (ii) Pilot line for assembly and packaging
- a. 15th May 2016
 - b. European Commission
 - c. <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5094-ict-29-2016.html>
- 22) Keynote talk and abstract: Is this the rise of green photonics?
- a. Dec 2009
 - b. ICFO (Institut de Ciencies Fotoniques) Barcelona, Spain
 - c. <http://www.icfo.es/images/news/ICFO%20CLP%20DAY%20Program.pdf>
- 23) Paper: Low-cost high-performance optical interconnect
- a. 1996
 - b. Proceedings, Conference on Lasers and Electro-Optics, (CLEO), vol 9, 1996
 - c. <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=864750>
- 24) Technical Advisor/Expert: 2nd review of MIRPHAB pilot line consortium funded by H2020 at European Commission
- a. 20th Feb 2017
 - b. 2nd review for MIRPHAB consortium at the European Commission, Brussels
 - c. European Commission, Brussels
 - d. <https://www.iaf.fraunhofer.de/en/research/research-areas/semiconductor-lasers/mirphab.html>
- 25) Paper: Performance and advantages of BICFETs versus HBTs
- a. Sep 1988
 - b. "Bipolar Circuits and Technology Meeting, 1988., Proceedings of the 1988 Digital Object Identifier: 10.1109/BIPOL.1988.51041 Publication Year: 1988 , Page(s): 41- 45"
 - c. <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=51041>
- 26) Talk and abstract: Magnetron Ion Etching of self aligned HFETs
- a. May 1987
 - b. Electrochemical Society (ECS) Conference proceedings SOTAPOCS VI, Compound Semiconductors, Philadelphia
 - c. http://www.electrochem.org/meetings/biannual/past_meetings_list.htm

- 27) Project advisor: European Commission ICT-28-2015 Cross-Cutting ICT KETs: Innovation Action (b) Pilot line for PIC fabrication on III-V and/or dielectric based platforms for PICs (Photonic Integrated Circuits)
- 24th Sep 2015
 - European Commission
 - <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/916-ict-28-2015.html>
- 28) Paper: Integrated high reflectivity silicon substrates for GaN LEDs
- 13th Jan 2012
 - Volume 9, Issue 3-4, pages 814-817, March 2012, physica status solidi (c)
 - <http://onlinelibrary.wiley.com/doi/10.1002/pssc.201100393/abstract>
- 29) Paper: Silicon light emitting device based on rare earth oxide superlattice
- Sep 2010
 - 7th IEEE International conference on Group IV photonics, Beijing China
 - <http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=5643407&url=http%3A%2F%2Fieeexplore.ieee.org%2Fiel5%2F5623516%2F5643317%2F05643407.pdf%3Farnumber%3D5643407>
- 30) Paper: Integrated high reflectivity silicon substrates for GaN LEDs
- 13th Jan 2012
 - "Conference Publication: ICNS-9 "Contributed Article Integrated high reflectivity silicon substrates for GaN LEDs
 - F. Erdem Arkun*, Rytis Dargis, Robin Smith, David Williams, Andrew Clark, Michael Lebby
 - Article first published online: 13 JAN 2012" ICNS-9 "Contributed Article Integrated high reflectivity silicon substrates for GaN LEDs
 - <http://onlinelibrary.wiley.com/doi/10.1002/pssc.201100393/abstract>
- 31) Cover story/Interview: Does a foundry model add up for InP optoelectronics
- Jul 2005
 - Interview with Michael Hatcher from Compound Semiconductor magazine. Volume 11, Number 7, August 2005 pp 17-19
 - Compound Semiconductor: Three-fives and silicon heterostructures
 - <http://www.compoundsemiconductor.net>
- 32) Paper: A low-cost high-performance optical interconnect
- 1996
 - "Components, Packaging, and Manufacturing Technology, Part B: Advanced Packaging, IEEE Transactions on Volume: 19, Issue: 3 Digital Object Identifier: 10.1109/96.533892 Publication Year: 1996, Page(s): 532- 539"
 - <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=533892>
- 33) Co-Chairman Optoelectronics session, 48th ECTC Conference
- 25th May 1998
 - Co-chairman Optoelectronics session, 48th ECTC Conference Seattle, Washington
 - ECTC, IEEE-CPMT, EIA/ECA

- d. <http://www.ectc.net>
- 34) Paper: GaAs/AlGaAs inversion channel devices for an integrated opto-electronic technology
 - a. Jun 1988
 - b. "Electron Devices, IEEE Transactions on Volume: 35, Issue: 12 Digital Object Identifier: 10.1109/16.8871 Publication Year: 1988"
 - c. <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=8871>
- 35) Paper & Poster: 100Gb/s Multi-guide vertical integration transmitter PIC in InP for fiber-optics interconnects
 - a. 24th Sep 2013
 - b. Sasa Ristic and Michael Lebby, Valery Tolstikhin, and Kirill Pimenov,
 - c. ECOC 2013
 - d. <http://www.ecoc2013.org/sc2.html>
- 36) Paper: Photonic Integration: what is the Holy Grail?
 - a. 14th Oct 2009
 - b. Compound Semiconductor
 - c. <http://compoundsemiconductor.net/csc/features-details.php?id=40435>
- 37) Paper: Optical components and their role in optical networks
 - a. 2001
 - b. Electronic Components and Technology Conference, 2001. Proceedings., 51st
 - c. http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=927765&url=http%3A%2F%2Fieeexplore.ieee.org%2Fxppls%2Fabs_all.jsp%3Farnumber%3D927765
- 38) Paper: Green photonics technology and markets
 - a. Sep 2009
 - b. Green photonics technology will open up opportunities over the next decade for new and creative products to be designed as the interest in a green, clean and energy efficient lifestyle continues to grow. This overview forecasts the optoelectronics expectations for green photonics technology and associated markets over the next decade and explores just a few of the exciting opportunities from green photonics technology.
 - c. Electronics Letters, Vol 45, issue 20
 - d. <http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=5270369&url=http%3A%2F%2Fieeexplore.ieee.org%2Fiel5%2F2220%2F5270368%2F05270369.pdf%3Farnumber%3D5270369>
- 39) Paper: OEICs: commercialization at last
 - a. Jul 2001
 - b. Compound Semiconductor, vol. 7. no. 6, pp. 81-2, 85, July 2001
 - c. <http://www.compoundsemiconductor.net/csc/features-details.php?cat=features&id=11719>
- 40) Report: Photonics industry-university collaborations (PICs)
 - a. 1st Jun 2009
 - b. OIDA Final Technical Report

- c. <http://oai.dtic.mil/oai/oai?verb=getRecord&metadataPrefix=html&identifier=ADA502737>
- 41) Invited Paper and Presentation: Approaching the problem of high density interconnects in the 'Monsoon' data-flow parallel processor with optics"
 - a. 28th Jan 1991
 - b. AFOSR, ONR, DARPA: A compendium of position papers from the workshop on architectures for free space digital optical computing
 - c. http://www.researchgate.net/publication/235184814_A_Compendium_of_Position_Papers_from_the_Workshop_on_Architectures_for_Free_Space_Digital_Optical_Computing_Held_in_Vail_Colorado_on_28-30_January_1991
- 42) Session organizer/Committee member: Market Focus at ECOC exhibit 2015
 - a. 28th Sep 2015
 - b. Session organizer/Committee member: Market Focus at ECOC exhibit 2015 with sessions in broadband access, datacentres, service provider optical transmission, network agility/SDN, photonics integration and packet optical transport. Nexus Business Media Ltd
 - c. <http://webcache.googleusercontent.com/search?q=cache:Qb68vjzhV5IJ:www.ecocexhibition.com/visitorhome/marketfocus2015/cfs+&cd=1&hl=en&ct=clnk&gl=us&client=safari>
- 43) Invited Presentation and Abstract: VCSEL Technology - VCSEL technology is discussed with the work between AMP and MODE (division of EMCORE) fiber optics.
 - a. Sep 1998
 - b. ECOC European Laser Workshop (in association with ECOC 1998, Madrid, Spain
 - c. https://openlibrary.org/books/OL22322573M/ECOC_'98_24th_European_Conference_on_Optical_Communication
- 44) Paper and Invited talk: VCSEL Devices and Packaging for Fiber Optic Transceivers
 - a. 30th Mar 1998
 - b. OSA Technical Digest: Integrated Photonics Research (IPR) 1998 paper: IWD1
 - c. <http://www.opticsinfobase.org/abstract.cfm?URI=IPR-1998-IWD1>
- 45) Invited Paper: Elegant cost effective optical subsystems for next generation optical networks
 - a. 13th Nov 2002
 - b. Electronicast: 4th Annual OADM and advanced photonics communication networks conference - market and technology trends, San Mateo, California
 - c. <http://www.electronicastconsultants.com/>
- 46) Paper: Key challenges and results of VCSELs in data links
 - a. 1996
 - b. "Lasers and Electro-Optics Society Annual Meeting, 1996. LEOS 96., IEEE Volume: 2 Digital Object Identifier: 10.1109/LEOS.1996.571604 Publication Year: 1996 , Page(s): 167 - 168 vol.2"
 - c. <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=571604>
- 47) Paper: A p-channel BICFET in the InGaAs/InAlAs material system

- a. Jun 1988
 - b. "Electron Device Letters, IEEE Volume: 9, Issue: 6 Digital Object Identifier: 10.1109/55.716 Publication Year: 1988 , Page(s): 278 - 280"
 - c. <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=716&tag=1>
- 48) Interview Optcon (Japan), "Ignis Optics: Small is beautiful"
- a. 15th Aug 2002
 - b. Overview of Ignis Optics strategy for fiber optic transceivers with innovative optoelectronic devices and packaging (in Japanese).
 - c. Optcon volume 8, no 161, pp50-51
 - d. <http://magissuelist.nichigai.co.jp/detail?id=000000098732>
- 49) Book: Research in optoelectronic devices volume II
- a. 1996
 - b. Annual collection of optoelectronic device and reliability department papers at the photonics technology center, Motorola, Tempe, USA. Key focus was the commercialization of VCSEL technology, especially at 850nm for the optobus parallel array product and other associated VCSEL prototypes. Demonstration of 660nm VCSELs discussed.
 - c. Motorola
- 50) Keynote invited speech: Green Photonics and GaN-on-Si for LEDs and Ge-on-Si for high Efficiency Multi-junction for PVs
- a. Dec 2011
 - b. Conference proceedings: High Capacity Optical Networks and Enabling Technologies (HONET), 2011
 - c. <http://honet.uncc.edu/archive/honet11/speakers.htm>
- 51) Invited Presentation: "Starting a company and hitting the ground running"
- a. 7th Feb 2001
 - b. Storm Ventures limited partner meeting
 - c. <http://www.stormventures.com>
- 52) Book: Research in VCSEL devices - Annual technical review 1995
- a. 1995
 - b. Annual collection of optoelectronic device and reliability department papers at the photonics technology center, Motorola, Tempe, USA.
 - c. Key focus was the commercialization of VCSEL technology, especially at 850nm for the Optobus™ parallel array product and other associated VCSEL prototypes.
Motorola
- 53) Paper: Optical bistability in vertical cavity surface emitting lasers with a simple intra-cavity epitaxial absorber layer
- a. 4th Oct 1998
 - b. Conference Digest: Semiconductor Laser Conference, 1998. ISLC 1998 NARA. 1998 IEEE 16th International
- 54) Invited Paper (extended abstract) and Presentation: Automated commercial fabrication of wideband tunable lasers using ultra-high resolution e-beam lithography
- a. 27th Oct 2004

- b. IoP/CS-MAX extended abstract at the Compound Semiconductor Manufacturing Expo, Monterey, California, pp92-94 in the technical digest.
 - c. <http://www.compoundsemiconductor.net>
- 55) Trial & Cross: Testimony before the US-China economic and security review commission on the optoelectronics industry
- a. 24th Mar 2009
 - b. "Expert witness and testimony on Capitol Hill
 - c. Final oral comments: In preparing this testimony, many people I contacted stressed the importance of decisive action by the U.S. government and industry now. Optoelectronics sits at the intersection of multiple technical disciplines. U.S. universities and industry are particularly adept at bringing diverse people together to work on complex problems. We have, by the nature of our inherent diversity, an advantage. What for many presents a challenge, for us comes naturally. Thank you for this opportunity to present our industry's perspective. "
 - d. United States China Commission
 - e. http://www.uscc.gov/hearings/2009hearings/written_testimonies/09_03_24_wrts/09_03_24_lebby_statement.pdf
- 56) Paper: Growing at light speed
- a. The article discusses the significance of optoelectronics in high technology manufacturing industries. Optoelectronics components are being used in the manufacturing cameras of mobile phones, plasma display panel TVs and LCD TVs, among others. Since its application allows product differentiation and innovation, it has spurred growth in segments such as the consumer/entertainment, computer and communications industries. The article also discusses the differences in the material and processing equipment such as silicon photonics.
 - b. Sep 2007
 - c. IEEE Circuits Assembly; Sep 2007, Vol. 18 Issue 9, p44
 - d. <http://www.thefreelibrary.com/Growing+at+light+speed%3a+after+a+false+start%2c+OE+is+fast+becoming+a...-a0168812805>
- 57) Paper: Fiber optic sensing technology: emerging markets and trends
- a. 2007
 - b. Third European Workshop on Optical Fibre Sensors.
 - c. Edited by Cutolo, Antonello; Culshaw, Brian; Lopez-Higuera, Joshua Miguel.
 - d. Proceedings of the SPIE, Volume 6619, pp. 661902 (2007). (SPIE Homepage)
 - e. <http://adsabs.harvard.edu/abs/2007SPIE.6619E...2H>
- 58) Paper: O/e-MCM packaging with new, patternable dielectric and optical materials
- a. May 1998
 - b. Electronic Components & Technology Conference, 1998. 48th IEEE
 - c. <http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=678929&url=http%3A%2F%2Fieeexplore.ieee.org%2Fiel4%2F5582%2F14953%2F00678929.pdf%3Farnumber%3D678929>

- 59) Video Interview: ECOC Market Focus on Datacenters and emerging new PIC technologies that include silicon and polymer photonics
- 3rd Oct 2016
 - Video taped interview by ECOC Exhibition Market Focus on Datacenters and emerging new PIC technologies that include polymer photonics.
 - ECOC Exhibition
 - <http://www.ecocexhibition.com/interviews2016>
- 60) Paper: Characteristics of VCSELs and VCSEL arrays for Optical Data Links
- 10th Dec 1996
 - Motorola: Technical Enrichment Matrix Conference, Motorola SPS- SABA, Hilton Pavilion, Mesa, Az
- 61) Paper: Very high-transconductance heterojunction field-effect transistor (HFET)
- Jan 1987
 - "A new form of FET has been demonstrated in the GaAs/AlGaAs material system. Designated the HFET, it has shown a transconductance of 500mS/mm at 300 K for a nominal $L_g = 2/\mu_n$ and a drain current of 430mA/mm. The conduction occurs in an inversion channel at the heterointerface"
 - "Electronics Letters Volume: 23, Issue: 2 Digital Object Identifier: 10.1049/el:19870056 Publication Year: 1987 , Page(s): 77 - 79"
 - <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=4257306>
- 62) Keynote Talk: Industry 'Optomism'
- 30th Apr 2001
 - Electronicast; Fiber Optics for the next decade conference; 13th Annual Monterey conference <http://www.electronicastconsultants.com>
- 63) Invited talk and moderator: Integrated photonics pilot lines
- 14th Nov 2014
 - "Photonics Pilot Line Workshop 14 November 2014 - Brussels, Belgium
 - European Commission and Photonics21
 - <http://www.photonics21.org/download/Events/DraftagendaPhotonicsPilotLineworkshop-Website.pdf>
- 64) Invited Talk and Abstract: VCSEL/detector technology for parallel optical interconnects
- 17th Jun 1997
 - International Workshop for new technologies, interconnects, and communications in distributed and parallel systems by IRIT, ONERA, CERT, CNRS, and LAAS (France)
- 65) Invited Talk: OIDA optoelectronics markets, technology and opportunities for optofluidics
- 20th Oct 2006
 - Organized by the DARPA center for optofluidics: translational research and commercialization workshop.
 - DARPA Optofluidics industry forum, UCSD San Diego, CA
 - <http://www.biophot.caltech.edu/optofluidics/>

- 66) Article: "Optoelectronics Technology: New and Exciting Markets in Consumer and Entertainment"
- 10th Jan 2007
 - "The total optoelectronics components and enabled products grew 20% in 2005 to \$364 billion, from \$304 billion in 2004. Components grew 17% in 2005 to \$104 billion, from \$89 billion in 2004. When flat panel displays are excluded as components, components grew 10% in 2005 to \$30 billion, from \$27 billion in the previous year. Enabled products grew 21% to \$260 billion in 2005, from \$215 billion in 2004.
 - IEEE CPMT Santa Clara
 - <http://www.cpmpt.org/scv/meetings/cpmt0701.html>
- 67) Paper: Characteristics of VCSEL arrays for parallel optical interconnects
- 1996
 - "Electronic Components and Technology Conference, 1996. Proceedings., 46th Digital Object Identifier: 10.1109/ECTC.1996.517404 Publication Year: 1996 , Page(s): 279 - 291"
 - <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=517404>
- 68) Paper: Demonstration of a p-channel GaAs/AlGaAs BICFET
- Feb 1988
 - "Electron Device Letters, IEEE Volume: 9, Issue: 2 Digital Object Identifier: 10.1109/55.2048 Publication Year: 1988 , Page(s): 84 - 86"
 - <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=2048>
- 69) Reviewer: European Commission ICT-29-2016 Photonics KET (b) Innovation Actions (i) Application driven core photonic devices integrated in systems.
- 14th May 2016
 - European Commission
 - <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5094-ict-29-2016.html>
- 70) Paper: Optoelectronics Roadmap OIDA-iNEMI
- May 2007
 - IEEE Packaging and Assembly
- 71) Article: A New Model for the Optoelectronic Indium-based Semiconductor Industry
- May 2006
 - OSA: Optics and Photonics News
 - <http://www.osa-opn.org/Content/ViewFile.aspx?id=10456>
- 72) Book: Optoelectronic Markets 2005
- Jun 2005
 - Comprehensive market report and forecast of current optoelectronics markets, needs, technologies, and applications. This report forecasts the current state and direction of the optoelectronics industry.
 - OIDA
 - <http://www.oida.org/home/publications/oida-publication-report-library/>
- 73) Book: Worldwide Optoelectronics Markets and Trends 2006

- a. Jun 2006
 - b. Comprehensive market report and forecast of current optoelectronics markets, needs, technologies, and applications. This report forecasts the current state and direction of the optoelectronics industry.
 - c. OIDA, 431 pages
 - d. http://www.oida.org/home/publications/oida_publication_report_library/2006_global_optoelectronics_industry_market_report/
- 74) Project advisor: European Commission ICT-28-2015 Cross-Cutting ICT KETs: Innovation Action (b) Pilot line for analytical mid-infrared (MIR) micro-sensors
- a. 22nd Sep 2015
 - b. European Commission
 - c. <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/916-ict-28-2015.html>
- 75) Video: The importance of photonics roadmapping
- a. 30th Jan 2017
 - b. Video on the importance of roadmapping photonics technologies at Photonics West San Francisco, 30th Jan 2017. Interview by Photon Delta.
 - c. <http://www.photondelta.eu>
- 76) Invited Presentation and Abstract: An investor's perspective on optical interconnects
- a. 24th May 2000
 - b. The talk discusses the investor's perspective on optical interconnects from Intel Capital.
 - c. IEEE: Workshop on interconnections within high-speed digital systems
 - d. <http://www.oj-ieee.org/>
- 77) Paper: A new heterostructure FET
- a. Dec 1986
 - b. "Electron Devices Meeting, 1986 International Volume: 32 Digital Object Identifier: 10.1109/IEDM.1986.191323 Publication Year: 1986, Page(s): 817 - 821"
 - c. <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=1486581>
- 78) Panel Session: Semiconductors to Optics
- a. 6th Nov 2000
 - b. Representing Intel at the conference, the panel explored the reasons why Intel was investing into photonics, optics, and fiber optic communications. Panel moderator was Drew Lanza, VC Morgenthaler.
 - c. JP Morgan communications components conference: the convergence of optical components and communications ICs
 - d. <http://www.thefreelibrary.com/Endwave+Founder+and+EVP+To+Speak+at+JP+Morgan+Communications...-a067529552>
- 79) Growth of GaN by MOCVD on rare earth oxide on Si(111)
- a. 31th Oct 2013
 - b. ECS Transactions, 58, 455 (2013)
 - c. <http://ecst.ecsdl.org/content/58/4/455.short>

- 80) Article: OPTICAL MATERIALS: 'On-silicon' engineered substrates speed photonic device development
- 1st Apr 2013
 - Laser Focus World
 - <http://www.laserfocusworld.com/articles/print/volume-49/issue-04/features/optical-materials---on-silicon--engineered-substrates-speed-phot.html>
- 81) Panel Session: An adventure into venture capital - lessons from silicon valley
- 12th Sep 2002
 - Evening forum discussion chaired by Professor Richard Harrison, Chair, with panel members Pitch Johnson (VC), Brendan Hyland (Nutrior Ventures), Jane Karwoski (All-hotels Ltd), and Colin Rutherford (Intelli Partners). Sponsored by Scottish Development International, University of Edinburgh, British Council
- 82) Paper: Vertical cavity surface emitting laser packaging with auto power control
- 18th May 1997
 - Electronic Components and Technology Conference, 1997. Proceedings., 47th
 - [http://ieeexplore.ieee.org/xpl/articleDetails.jsp?tp=&arnumber=606195&contentType=Conference+Publications&sortType%3Dasc_p_Sequence%26filter%3DAND\(p_IS_Number%3A13278\)](http://ieeexplore.ieee.org/xpl/articleDetails.jsp?tp=&arnumber=606195&contentType=Conference+Publications&sortType%3Dasc_p_Sequence%26filter%3DAND(p_IS_Number%3A13278))
- 83) Webinar and presentation
- 29th Mar 2011
 - "The future of photonics webinar and presentation: The Future of Photonics: Three Perspectives brings together three expert viewpoints on the future of the photonics industry (Michael Lebby will be the expert on market trends and photonic integrated circuits (PICs)). You will learn: global optoelectronics market outlook through 2021 trends in photonic integrated circuits over the next two decades."
 - Photonics Media
 - <http://www.photonics.com/Webinar.aspx?WebinarID=7>
- 84) Book: 2007 Global Optoelectronics Industry Market Report and Forecast
- Jun 2007
 - Comprehensive market report and forecast of current optoelectronics markets, needs, technologies, and applications. This report forecasts the current state and direction of the optoelectronics industry.
 - OIDA, 517 pages
 - http://www.oida.org/home/publications/oida_publication_report_library/2007_global_optoelectronics_industry_market_report/
- 85) Paper: Use of VCSEL arrays for parallel optical interconnects
- 10th Apr 1996
 - Proc. SPIE 2683, Fabrication, Testing, and Reliability of Semiconductor Lasers, 81 (April 10, 1996); doi:10.1117/12.237679
 - <http://proceedings.spiedigitallibrary.org/proceeding.aspx?articleid=1015866>
- 86) Book: 2009 Global Optoelectronics Industry Market Report and Forecast
- Dec 2009

- b. Comprehensive market report and forecast of current optoelectronics markets, needs, technologies, and applications. This report forecasts the current state and direction of the optoelectronics industry.
 - c. OIDA, 545 pages
 - d. http://www.oida.org/home/publications/oida_publication_report_library/2009_global_optoelectronics_industry_market_report/
- 87) Workshop: The Challenge for Indium Phosphide Photonic Development and the Optical Foundry
- a. 2006
 - b. "Workshop chairman and editor of the report.
 - c. Abstract: Indium Phosphide, InP, is a semiconductor material with properties that make it particularly suitable for optoelectronic devices. Optical communications requirements drove its initial development. Recently, the applications for InP semiconductor devices have broadened to include high-speed electronics and optical sensors. This report examines the current state of the InP device market and its future direction. Addresses challenges for a pure foundry play and the role for InP devices. Seeks to find the best ways to address the needs for InP device development in the U.S."
 - d. OIDA
 - e. http://www.oida.org/home/publications/oida_publication_report_library/the_challenge_for_indium_phosphide_photonic_develo/
- 88) Workshop: Nitride LED and Laser Technology and Its Impact on the Display, Medical, and Storage Industries
- a. 2006
 - b. Workshop chairman and editor of the report:
 - c. Abstract: Since the development of p-type material in 1989, research in nitride emitter technology has developed rapidly over the last 15 years. This material system provided a new range of color applications that could be better utilized and with far better reliability than the II-VI material system. This report examines material systems and developments for short wavelength (green-ultraviolet) lasers and LEDs with techniques such as color-mixing and phosphor conversion.
 - d. OIDA
 - e. http://www.oida.org/home/publications/oida_publication_report_library/nitride_led_and_laser_technology_and_its_impact_on/
- 89) Workshop: High Power Diode Laser Sources and Their Impact on Industrial, Medical, and Military Laser Industries
- a. 1st Jul 2006
 - b. Workshop chairman and editor of the report:
 - c. Abstract: High power semiconductor laser diodes are used in several different market segments today. The technology continues to advance and improvements in efficiency and power are reported each year. Semiconductor laser diodes are used either directly or indirectly to enable new applications or as a replacement for older technology approaches. This report examines practical implementations

- and limitations for lasers in the 100 W to 100 kW range and roadmaps and developments anticipated over the next five years.
- d. OIDA
 - e. http://www.oida.org/home/publications/oida_publication_report_library/high_power_diode_laser_sources_and_their_impact_on/
- 90) Keynote talk and invited abstract: "Integrated photonics as a vehicle for the next generation IC"
- a. 9th Sep 2015
 - b. Internet Technology Applications (ITA) ITA-15 conference Wrexham, Wales, UK 8-11th Sept 2015
 - c. <http://www.ita15.net/keynote-speaker/>
- 91) Talk and panel session: Approaches for combining 3-5 and silicon, add functionality to Si photonics, heterogeneous versus hybrid integration, introduction of photonic platforms
- a. 5th Dec 2013
 - b. Short presentation on PICs, OEICs, Si photonics, and combinations of these technologies from a revenue, investment, application and technology standpoint.
 - c. EPIC workshop: Meet or eat? collaboration and/or competition in photonic integrated circuits (PICs)
 - d. <http://epic-assoc.com/contact-us/?at=94>
- 92) Invited talk: Feedback USA/International related events
- a. 5th Dec 2013
 - b. Feedback on the subject of InP PICs, OEICs, and silicon photonics from workshops and related international events from around the globe.
 - c. EPIC workshop: Meet or eat? Collaboration and/or competition in Photonic Integrated Circuits (PICs)?
 - d. <http://epic-assoc.com/contact-us/?at=94>
- 93) Course: Optoelectronics Components and Modules for Datacom and Telecom
- a. May 2000
 - b. Optoelectronics components and modules for the Telecommunication industry and Datacom Networks are rapidly advancing in terms of speed, lower cost and design. The main objectives of this course are to review the current and future trends for active devices and packaging technology for discrete components and data network modules. The course will cover in detail the fundamental active III-V devices and components used today and review current trends in both III-V device technology and packaging for telecom and datacom applications.
 - c. Proceedings 50th Electronics Components and Technology Conference May 2000
 - d. <http://www.thierry-lequeu.fr/data/Ectc/ECTC2000/ECTC2000.pdf>
- 94) Thesis: Fabrication and characterization of the heterojunction field effect transistor and the bipolar inversion channel field effect transistor
- a. 1987
 - b. Characterization of HFETs and BICFETs fabricated from GaAs/AlGaAs with magnetron ion etching, sputtered tungsten gates, ion implanted source/drain contacts and rapid thermal anneals.

- c. University of Bradford, UK 1987
- d. <http://www.edt.brad.ac.uk/home/>
- 95) Technical Advisor/Expert: 2nd review of PIX4LIFE pilot line consortium funded by H2020 at European Commission
 - a. 14th Mar 2017
 - b. 2nd review of PIX4LIFE pilot line consortium at the European Commission, Brussels.
 - c. European Commission, Brussels, Belgium
 - d. <http://www.pix4life.eu>
- 96) Invited Presentation: Optoelectronic Integration for Metro DWDM: Intel's perspective...
 - a. 3rd Sep 2000
 - b. As part of the ECOC conference in Munich Germany, this workshop invited 9 speakers to discuss the future of optical networking in metropolitan environments.
 - c. Electronicast Europe
 - d. <http://www.electronicastconsultants.com>
- 97) Workshop: Biophotonic Sensors and Smart Fiber Optic Sensor Networks
 - a. 1st Aug 2006
 - b. Workshop chairman and editor of the report:
 - c. Abstract: This roadmap report examines biophotonic sensor opportunities from many perspectives including; government, industrial, university and venture capital. The markets, technologies, commercialization, and roadmap trends are presented in addition to promising areas for R & D.
 - d. OIDA
 - e. http://www.oida.org/home/publications/oida_publication_report_library/biophotonic_sensors_and_smart_fiber_optic_sensor_n/
- 98) Paper: Parallel optical interconnects using VCSELs
 - a. 1995
 - b. "High Speed Semiconductor Devices and Circuits, 1995. Proceedings., IEEE/Cornell Conference on Advanced Concepts in Digital Object Identifier: 10.1109/CORNEL.1995.482526 Publication Year: 1995 , Page(s): 348 - 356"
 - c. <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=482526>
- 99) Poster paper: A versatile InP OEIC (PIC) platform enabling 100G+ coherent receiver and client-side transceiver engines
 - a. 12th Nov 2013
 - b. Poster paper describing OneChip's latest results in coherent receivers, LR4 optical engines, and PSM4 optical engines.
 - c. Silicon Photonics Workshop, Southampton University, UK
 - d. http://www.orc.soton.ac.uk/UKSP_presents.html
- 100) Keynote Presentation: Optoelectronics Integration for Metro DWDM, Intel's Perspective
 - a. 9th Oct 2000

- b. Electronicast Corporations: Optical communications start-up and emerging companies conference
- c. <http://www.electronicastconsultants.com>
- 101) Workshop: Wide Area Surveillance
 - a. 1st Oct 2006
 - b. Workshop chairman and editor of the report:
 - c. Abstract: This report examines wide area surveillance of pipelines and other strategic infrastructure as it is rapidly becoming an important issue on a worldwide basis. The increasing need for surveillance for both homeland security as well as defense applications should make this commercially attractive to both the defense as well as to commercial industry. (Report is 62 pages followed by hard copies of presentations from the forum.)
 - d. OIDA
 - e. http://www.oida.org/home/publications/oida_publication_report_library/wide_are_a_surveillance/
- 102) Invited Panel Session: Opto Electronic Integrated Circuits - More IC than OE?
 - a. 5th Mar 2000
 - b. "The panel session focused on optical integration for communications. Other panel members included Brendan Hyland CEO of Kymata amongst others.
 - c. OSA Executive Forum: Photonics and Telecommunications: the tidal wave of the new millennium
 - d. <http://www.laserfocusworld.com/articles/2000/02/osa-executive-forum-at-ofc-2000.html>
- 103) Keynote talk and abstract: "PIC the next generation IC..."
 - a. 23rd Sep 2015
 - b. Photonic Integration Conference, organized by Jakajima, Netherlands
 - c. <http://www.phiconference.com/program/>
- 104) Workshop: 100 Gb Ethernet: The Next Challenge for Communications Systems
 - a. 1st Oct 2006
 - b. Workshop chairman and editor of the report: Abstract: The communications market is continuously evolving to provide better and cheaper services. These changes have led to the movement away from the traditional voice-switched networks to more data-centric packet networks. This report seeks to examine the next generation of Ethernet devices as we strain the technology limits at 100 Gb/s? How will datacom and telecom networks differ in their approaches? OIDA
[http://www.oida.org/home/publications/oida_publication_report_library/100_gb_ethernet_the_next_challenge_for_communi_\(1\)/](http://www.oida.org/home/publications/oida_publication_report_library/100_gb_ethernet_the_next_challenge_for_communi_(1)/)
- 105) Paper: Vertical cavity surface emitting laser-based parallel optical data link
 - a. Dec 1998
 - b. Optical Engineering, vol 37, no. 12, pp.3113-18, Dec. 1998.
 - c. http://spie.org/x648.html?product_id=318648
- 106) Workshop: Artificial vision systems
 - a. 1st Dec 2006

- b. Workshop chairman and editor of the report:
 - c. Abstract: The ability to identify objects of interest and emerging threats around a vehicle in real time or by a warfighter looking for threats in a large field of view is currently severely hampered by the limitations of current algorithms and processing platforms. There have been recent advances in several technology areas, which if combined intelligently could solve this hard problem in enhancing situational awareness cost effectively. This report looks at the issues surrounding automated surveillance systems specifically looking at enhanced binoculars and convoy vehicle automated protection systems.
 - d. OIDA
 - e. http://www.oida.org/home/publications/oida_publication_report_library/artificial_vision_systems/
- 107) Workshop: Silicon Photonics: Challenges and Future, 2007
- a. 2007
 - b. Workshop chairman and editor of the report:
 - c. Abstract: Copper interconnects are currently used extensively within the data center environment. Fiber optic technology is used as a connectivity solution when higher performance is required and the cost differential compared to a copper solution is affordable. Fiber optic technology offers several key advantages over copper solutions for data transmission. This report looks at silicon photonics as a potential optical interconnect solution and addresses the issues and technology paths being pursued.
 - d. OIDA
 - e. http://www.oida.org/home/publications/oida_publication_report_library/silicon_photonics_challenges_and_future_2007/
- 108) Invited talk/plenary: High-Performance Datacenter Platform: Using InP for Silicon Photonics
- a. 8th Jan 2014
 - b. IEEE-CPMT/Photonics Society local chapter meeting, Santa Clara, California
 - c. <http://www.cpmt.org/scv/meetings/cpmt1401.html>
- 109) Paper: ORMOCERs - new photo-patternable dielectric and optical materials for MCM-packaging
- a. Jan 1998
 - b. Hybrid inorganic-organic polymers (ORMOCERs*) have been developed and tested in an ongoing EU-program (BE 7250 DONDOMCM) for evaluation in MCM applications. The photopatternable materials with negative resist behavior are composed of inorganic oxidic structures cross-linked or substituted by organic groups. They are prepared from organosilane precursors by sol-gel-processing in combination with organic crosslinking of polymerizable organic functions. As a result of these functionalities the properties of the ORMOCERs can be adjusted to particular applications. Systematic variation of composition combined with adaptation to micro system technology allows great flexibility in processing. Some features of these materials are: Postbaking at

moderate temperatures (120 °C - 180 °C) enables processing on substrates such as FR-4 and BT. Combined use as dielectric and passivation layers in electrical systems and devices as well as core and cladding for optical applications enables e/o applications with high integration levels. Easily adaptable to thin film technology: spin-on with planarization >90% and via diameters down to 20 µm have been achieved

- c. Proceedings of the 1998 48th Electronic Components and Technology Conference
- d. <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?reload=true&arnumber=678838&contentType=Conference+Publications>
- 110) Technical Advisor/Expert: 2nd review of PI-SCALE project pilot line funded by H2020, European Commission
 - a. 21st Feb 2017
 - b. 2nd review of PI-SCALE consortium pilot line at European Commission, Brussels
 - c. European Commission, Brussels, Belgium
 - d. <http://pi-scale.eu>
- 111) Short Article: President's Letter to OIDA Membership
 - a. Nov 2005
 - b. OIDA Newsletter, quarterly from 2005-2009
 - c. http://www.wsr-ods.com/files/oidanews_0408.pdf
- 112) Workshop: Photonic Sensors Roadmapping Report, 2007
 - a. 2007
 - b. Workshop chairman and editor of the report:
 - c. Abstract: This OIDA workshop report examines application specific sensor needs for both the government and the private sector with an emphasis on the oil and gas market, sensing function integration, cost reduction opportunities, and barriers and competing technologies.
 - d. OIDA
 - e. http://www.oida.org/home/publications/oida_publication_report_library/photonic_sensors_roadmapping_report_2007/
- 113) Paper: A low-cost high-performance optical interconnect
 - a. Aug 1996
 - b. The Optobus™ link is a ten channel parallel bidirectional data link based on multimode fiber ribbons. The guiding principal of the Optobus™ design was to produce an optical interconnect capable of competing with copper on price, not just performance. Recognizing that packaging dominates the cost of optical interconnects, the design focused on minimizing the complexity of the optical subassembly. A key component of this strategy is the use of AlGaAs/GaAs vertical cavity surface emitting lasers (VCSELs). Another is designing the silicon receiver and transmitter arrays around the module level packaging parasitics. The resulting parallel transceiver modules achieve a minimum throughput of 1.5 Gb/s in each direction with a power dissipation of 1.6 W

- c. Components, Packaging, and Manufacturing Technology, Part B: Advanced Packaging, IEEE Transactions on Volume: 19 , Issue: 3 Page(s): 532- 539
- d. <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=533892>
- 114) Workshop: Micropackaging for the Next Generation of Optical and Electrical Components
 - a. 2007
 - b. Workshop chairman and editor of the report:
 - c. Abstract: Optical components are ubiquitous. Applications that use them include DVD players, audio devices, cell phones, re-writable drives, projection displays, and communication devices. This report concentrates on the role of micropackaging for the for next generation fiber optic components with an eye towards lower cost and higher volume.
 - d. OIDA
 - e. http://www.oida.org/home/publications/oida_publication_report_library/micropackaging_for_the_next_generation_of_optical/
- 115) Paper: ORMOCERs(TM)-new photo-patternable dielectric and optical materials for MCM-packaging
 - a. May 1998
 - b. Hybrid inorganic-organic polymers (ORMOCERs*) have been developed and tested in an ongoing EU-program (BE 7250 DONDOMCM) for evaluation in MCM applications. The photo-pattemable materials with negative resist behavior are composed of inorganic oxidic structures cross-linked or substituted by organic groups. They are prepared from organosilane precursors by sol-gel-processing in combination with organic crosslinking of polymerizable organic functions. As a result of these functionalities the properties of the ORMOCERs can be adjusted to particular applications. Systematic variation of composition combined with adaptation to micro system technology allows great flexibility in processing. Some features of these materials are: Post baking at moderate temperatures (120 °C - 180 °C) enables processing on substrates such as FR-4 and BT. Combined use as dielectric and passivation layers in electrical systems and devices as well as core and cladding for optical applications enables e/o applications with high integration levels. Easily adaptable to thin film technology: spin-on with planarization >90% and via diameters down to 20 µm have been achieved
 - c. 1998 Proceedings. 48th Electronic Components and Technology Conference
 - d. <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?reload=true&arnumber=678838&contentType=Conference+Publications>
- 116) Invited talk/plenary: Next generation ICs using photonics integration
 - a. 10th Dec 2013
 - b. Talk that reviews OneChip Photonics technology and in general PICs, OEICs, Silicon photonics, and how these technologies play into datacenters (data centers) for client side high speed 100G fiber (fibre) optic transceiver interconnects and cabling.

- c. IQE Capital markets day, Sky Pavillion, Rothschild Building, London, UK
- d. <http://www.euroinvestor.com/news/2013/12/10/iqe-plc-capital-markets-day/12617916>
- 117) Workshop: 100 Gbit Interconnects and Above: The Need for Speed
 - a. 1st May 2007
 - b. Workshop chairman and editor of the report:
 - c. Abstract: The electronic society we live in today is seeing increased demand for data transfer, internet downloads, online applications, video sharing and storage. The electronic world of banks, companies, universities and governments require large secure datacenters connected to secure networks. This continuously drives for the development of more powerful servers and computer systems. This report examines needs and motivations for optical interconnect implementation. Looks at the applications, history, market drivers, and future issues that affect this crossover.
 - d. OIDA
 - e. http://www.oida.org/home/publications/oida_publication_report_library/100_gb_ethernet_the_next_challenge_for_communicati/
- 118) Paper: VCSEL devices and packaging
 - a. Dec 1998
 - b. Proceedings of SPIE, ISSN 0277-786X, 05/2003, Volume 3289, Issue 1
 - c. <http://proceedings.spiedigitallibrary.org/proceeding.aspx?articleid=935769>
- 119) Workshop: Perspectives on the Optoelectronics Industry: Manufacturing in the 21st Century, 2008
 - a. 2008
 - b. Workshop chairman and editor of the report:
 - c. Abstract: This report provides insight and perspectives by senior-level representatives from industry on global trade and manufacturing practices in the field of optoelectronics. Three areas examined are: 1) Can automation or optical integration relieve the momentum to outsource and off-shore manufacturing from North America? 2) The supply chain and the economics of manufacturing in the U.S., Europe, and Asia, and 3) The implications of offshore manufacturing on both the U.S. defense and commercial market sectors within the different fields of optoelectronics.
 - d. OIDA
 - e. http://www.oida.org/home/publications/oida_publication_report_library/perspectives_on_the_optoelectronics_industry_manuf/
- 120) Workshop: Perspectives on the Optoelectronics Industry: Innovation, 2008
 - a. 2008
 - b. Workshop chairman and editor of the report: Abstract: This report documents some of the issues raised at the Optoelectronics Industry Development Association (OIDA) forum and provides a review on the critical issue of innovation in the U.S. and the impact it has on future American competitiveness

- and technology leadership. This report looks at innovation and R&D from many perspectives: global, business, university, government funding agencies.
- c. OIDA
 - d. http://www.oida.org/home/publications/oida_publication_report_library/perspectives_on_the_optoelectronics_industry_innov/
- 121) Technical Advisor/Expert: 1st review of PIXAPP pilot line consortium funded by H2020 at European Commission
- a. 21st Feb 2017
 - b. 1st Review of Pixapp project at EU Commission as part of the pilot line project.
 - c. European Commission, Brussels
 - d. <http://www.fabiodisconzi.com/open-h2020/projects/206352/index.html>
- 122) Invited talk and Chair panel session: EPIC workshop on photonic integrated circuits; "Global integrated photonics update and roadmaps"
- a. 9th Jun 2015
 - b. "Invited talk: Global integrated photonics update and roadmaps
 - c. Panel Session: Integrated photonics foundry status
 - d. EPIC trade association, Europe
 - e. <http://www.epic-assoc.com/epic-workshop-on-photonic-integrated-circuits/>
- 123) Paper: Epitaxial Si and Gd₂O₃ Heterostructures - Distributed Bragg Reflectors with Stress Management Function for GaN on Si Light Emitting Devices
- a. 1st Oct 2012
 - b. ECS J. Solid State Sci. Technol. 1, 246 (2012)
 - c. <http://jss.ecsdl.org/content/1/5/P246.full>
- 124) Invited Talk: Lightwave Logic Inc Annual Shareholder Meeting "High Performance Polymer Photonics for Next Generation PICs"
- a. 18th May 2017
 - b. Presentation of corporate technology and strategy for Lightwave Logic Inc and polymer PIC platforms.
 - c. Lightwave Logic Inc (OTCQB:LWLG)
 - d. <http://www.lightwavelogic.com/presentations>
- 125) Course and Tutorial: Optoelectronic Devices and Packaging: VCSEL Technology
- a. Jan 1998
 - b. "Optoelectronic devices and packaging have found increasing use in many new products over the last 20 Yrs. This tutorial primarily will focus on semiconductor laser based technology with particular emphasis on emerging new technologies such as the Vertical Cavity Surface Emitting Laser (VCSEL) and how to take advantage of its uniqueness in packaging. The tutorial will look at the driving factors required for low cost high volume VCSEL based packages and what impact they will have in tomorrow's products. As there are many packaging solutions for VCSEL based technology proposed, the course will show the relative merits of popular new technologies with respect to high volume and low cost manufacturing.
 - c. 4th IEEE Workshop on AST Phoenix Research Center

- d. <http://www.ewh.ieee.org/soc/cpmt/ast98/lebbby-01.ppt>
- 126) Invited talk/Panel session: InP based photonics integration platform for datacenter and coherent communications
 - a. 4/2/2014
 - b. Invited talk/panel session on the future of integrated photonics. Discussion was on both InP and silicon photonics technologies over the next decade.
 - c. Workshop on the future of Integrated Photonics organized by the Netherlands Office for Science & Technology is pleased to invite you to a workshop, occurring In conjunction with the upcoming Photonics West conference
 - d. <http://www.hollandinthevalley.com/panel-discussion-on-the-future-of-integrated-photonics/>
- 127) Paper: An n-channel BICFET in the InGaAs/InAlGaAs/InAlAs material system
 - a. 1989
 - b. "Electron Device Letters, IEEE Volume: 10 , Issue: 7 Digital Object Identifier: 10.1109/55.29660 Publication Year: 1989 , Page(s): 304 - 306"
 - c. <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=29660&tag=1>
- 128) Workshop: Perspectives on the Optoelectronics Industry, 2008
 - a. 2008
 - b. Workshop chairman and editor of the report:
 - c. Abstract: The United States is falling behind in the manufacturing, packaging, and assembling of optoelectronics products. Innovating technology may also be imperiled. This report is the result of the first of three optoelectronic forums sponsored by the Defense Advanced Research Projects Agency (DARPA), This report details the trends, findings, and directions for optoelectronics in each of these market applications. Included in the first chapter of this report is the global optoelectronics summary that was compiled by OIDA in 2007.
 - d. OIDA
 - e. http://www.oida.org/home/publications/oida_publication_report_library/perspectives_on_the_optoelectronics_industry_2008/
- 129) Workshop: Future Optical Communication Systems, 2008
 - a. 2008
 - b. Workshop chairman and editor of the report:
 - c. Abstract: This report examines future optical communication needs and technologies. Topics include: Networks, Core, Metro, and Access Technology, photonic integration, and markets.
 - d. OIDA
 - e. http://www.oida.org/home/publications/oida_publication_report_library/future_optical_communication_systems_2008/
- 130) Workshop: Green Photonics: The Role of Optoelectronics in a Sustainable Future, 2009
 - a. 2009
 - b. Workshop chairman and editor of the report:

- c. Abstract: This report explores the optoelectronics expectations for green photonics technology, and forecasts the associated markets through 2020. The cultural impact for a green, clean, and energy efficient lifestyle is just beginning. Over the next decade, many innovative new products will emerge in a variety of industries that will better define and demonstrate green photonics technology. It is clear to many that a broad range of products and services that the economy will utilize over the next decade will contain optoelectronics (interchangeable with the term photonics), either as key components or as components that enable better and more efficient systems.
- d. OIDA
- e. http://www.oida.org/home/publications/oida_publication_report_library/green_photonics_the_role_of_optoelectronics_in_a_s/
- 131) Paper: Automatic power control of a VCSEL using an angled lid TO56 package
 - a. 05/1998
 - b. 1998 Proceedings. 48th Electronic Components and Technology Conference
 - c. <http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=678694&url=http%3A%2F%2Fieeexplore.ieee.org%2Fiel4%2F5582%2F14953%2F00678694.pdf%3Farnumber%3D678694>
- 132) Workshop: Fabrication Challenges and Opportunities in Photonics, 2010
 - a. 2010
 - b. Workshop chairman and editor of the report: Abstract: This report examines different operational models employed by industry (fabless, fab-lite, pure play foundry and vertically integrated companies), and the role of governments in stimulating the growth of the photonics industry.
 - c. OIDA
 - d. http://www.oida.org/home/publications/oida_publication_report_library/fabrication_challenges_and_opportunities_in_photonics/
- 133) Conference: Optimism: "Powering the green revolution through photonics"
 - a. 1/4/2009
 - b. "Co-chairman of Optimism conference with Pennwell.
 - c. OIDA and Pennwell (Laser Focus World)
 - d. <http://www.laserfocusworld.com/articles/print/volume-45/issue-4/world-news/conference-preview-optimism-to-emphasize-lesquogreenrsquo-growth.html>
- 134) Paper: Characteristics of VCSELs and VCSEL arrays for optical data links
 - a. 02/1997
 - b. Proc. SPIE 3004, Fabrication, Testing, and Reliability of Semiconductor Lasers II, 122 (May 1, 1997); doi:10.1117/12.273825
 - c. <http://proceedings.spiedigitallibrary.org/proceeding.aspx?articleid=918720>
- 135) Paper: Epitaxial Si, SiGe and Ge on binary and ternary rare earth oxide buffers
 - a. 2012
 - b. Phys. Status Solidi C 9, 2031 (2012)
 - c. <http://onlinelibrary.wiley.com/doi/10.1002/pssc.201200255/abstract>

- 136) Paper: Epitaxial Si and Gd₂O₃ Heterostructures - Distributed Bragg Reflectors with Stress Management Function for GaN on Si Light Emitting Devices
- 2013
 - ECS Trans 2013 volume 50, issue 4, 47-52
 - <http://ecst.ecsdl.org/content/50/4/47.short>
- 137) Keynote talk: Photonic integration in InP: A regrowth-free platform for fabless manufacturing model
- 19/3/2014
 - CS International Conference Frankfurt, March 17th-20th 2014
 - <http://cs-international.net/agenda.php>
- 138) Paper: An Inversion Channel Technology For Opto-Electronic Integration
- 8/2/1989
 - A new approach to optoelectronic integration is reported which combines electronic and optical devices fabricated with a common sequence and a single MBE wafer growth. The devices have in common, an inversion layer structure produced by charge sheet doping.
 - Proceedings Vol. 0994 Optoelectronic Materials, Devices, Packaging, and Interconnects II, Glen M. McWright; Henry J. Wojtunik, Editors, pp.251-510 Date: 9 February 1989 ISBN: 9780819400291
 - http://spie.org/x648.html?product_id=960136
- 139) Invited talk/Panel session "Optical interconnect in datacenters"
- 18/3/2014
 - "The 1st Optical Interconnect in Data Centers Symposium takes place on the 18th and 19th of March 2014 in Berlin/ Germany.
 - It is focused on high-performance, low-energy and low-cost and small-size optical interconnects across the different hierarchy levels in data center and high-performance computing systems: on-board, board-to-board and rack-to-rack.
 - EPIC: Symposium on optical interconnect in datacenters
 - <http://www.phoxtrout.eu/1st-optical-interconnect-in-data-centers-symposium/>
- 140) Conference and workshop: 3rd Annual Green Photonics Forum (OIDA Green 2010)
- 10/6/2010
 - Conference chairman: OIDA's innovative green photonics forums have become a focal point for photonics and optics in the area of sustainable energy. The annual forum on green photonics, brings together key players involved in developing the technical and business roles of photonics in building a more sustainable and renewable future. Efficiency, monitoring, and energy generation are areas where photonics technology will play a key role and the photonics industry will deliver solutions.
 - OIDA
 - <http://www.clocate.com/conference/3rd-Annual-Green-Photonics-Forum-OIDA-Green-2010/4045/>
- 141) Invited talk, short abstract, and session chairman: Energy Efficient Photonics

- a. 19/3/2009
- b. Summary: Green photonics initiatives: The role of optoelectronics in a sustainable future...
- c. European Commission: High Level Event on ICT for Energy Efficiency
- d. http://ec.europa.eu/information_society/events/cf/ee09/item-display.cfm?id=2174
- 142) Paper: Vertical cavity surface emitting laser packaging with auto power control
 - a. 05/1997
 - b. Proceedings, 47th Electronic Components and Technology Conference, pp. 368-370, May 1997
 - c. http://www.researchgate.net/publication/3700010_Vertical_cavity_surface_emitting_laser_packaging_with_auto_powercontrol
- 143) Invited presentation for Day of Photonics at Glyndwr University: Photonics - markets, applications, integrated, next generation IC
 - a. 21/10/2014
 - b. Invited presentation/lecture on photonics at the Glyndwr University.
 - c. Welsh Optoelectronic Forum (WOF)
 - d. http://www.wof.org.uk/home.php?page_id=4&event_id=317
- 144) Paper: Reactive ion etching (RIE) and magnetron ion etching (MIE) combinations for opto-electronic integrated circuit (OEIC) processing
 - a. 11/1988
 - b. Proc. SPIE Vol. 1037, p. 88, Monitoring and Control of Plasma-Enhanced Processing of Semiconductors, James E. Griffiths; Ed.
 - c. http://spie.org/x648.html?product_id=951018
- 145) Paper: Scalable GaN-on-Silicon using rare earth oxide buffer layers
 - a. 9/10/2012
 - b. ECS Trans 2013 volume 50, issue 9, 1065-1071
 - c. <http://ma.ecsdl.org/content/MA2012-02/30/2538.short>
- 146) Video and presentation: Green Photonics: Will it Change our Lives over the Next Decade?
 - a. 04/2010
 - b. Photonics is growing to enable new green technologies and products. Photonics already has a large presence in various modules and components with opportunities to expand to home displays, solar cells, lighting, and various consumer applications. The global optoelectronics industry has a strong outlook for growth in the near future, with even faster growth in green photonics. Green photonics can help reduce greenhouse gas emissions, generate or conserve energy, reduce pollution, and improve human health.
 - c. University of California, Santa Barbara: Institute of Energy Efficiency
 - d. <http://iee.ucsb.edu/node/1024>
- 147) Invited Talk and Panelist: Emerging Technologies Summit; Integrated Photonics session, Stanford University, as part of the Kingdom of the Netherlands trade mission to Silicon Valley
 - a. 10/1/2017

- b. "Discussion with HRH Prince Constantijn and DG Bertolt Leefink about photonics ecosystem and startups. Photonics highlights (Michael Lebby)
 - c. Consulate General San Francisco, The Kingdom of Netherlands
 - d. <https://ez.atavist.com/emerging-technologies-summit>
- 148) Invited talk and abstract: Coherent Receiver Chip for 100G DP-QPSK
 - a. 30/4/2014
 - b. SIOE (Semiconductor and integrated optoelectronics) Conference, Cardiff, Wales, UK 29th April-1st May 2014, Institute of Physics
 - c. <http://www.astro.cardiff.ac.uk/research/cmp/events/resources/Sioeprogramme14final.pdf>
- 149) Invited Talk: Annual Shareholder Meeting 2016 - Market Perspective LWLG Polymer Photonics vs Legacy Devices
 - a. 20/5/2016
 - b. Presentation to investor group at Lightwave Logic's Annual Shareholder Meeting
Lightwave Logic
 - c. <http://lightwavelogic.com/company-updates/>
- 150) Project advisor: European Commission ICT-28-2015 Cross-Cutting ICT KETs: Innovation Action (b) Pilot line for OLEDs on flexible substrates
 - a. 20/9/2015
 - b. European Commission
 - c. <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/916-ict-28-2015.html>
- 151) Invited talk: Compound Semiconductors (CS) driving photonics
 - a. 11/6/2014
 - b. Invited presentation for Welsh Gvt and commercial industry in epitaxial growth. The talk covered photonics: global markets, green photonics, photonics technology sectors (lighting, solar, displays, sensors, communications), integrated photonics and silicon photonics. Commercial industry invite by International Quantum Epitaxy (IQE)
 - c. Growth and application of epitaxial heterostructures with polymorphous rare earth oxides
 - d. Journal of Crystal Growth
 - e. <http://www.sciencedirect.com/science/article/pii/S0022024812009487>
- 152) Engineering of the Interface Between Silicon and Rare-Earth Oxide Buffer for GaN growth
 - a. 09/2012
 - b. ECS Meeting Oct 2013, San Francisco, USA
 - c. http://scholar.googleusercontent.com/scholar?q=cache:l3-oHWxNDzwJ:scholar.google.com/+%22michael+lebbby%22&hl=en&as_sdt=1,5&as_ylo=2013&as_vis=1
- 153) Paper: Parallel interconnect for a novel system approach to short distance high information transfer data links
 - a. 04/1997

- b. Proceedings of SPIE, ISSN 0277-786X, 04/1997, Volume 3038, Issue 1
- c. <http://www.deepdyve.com/lp/spie/parallel-interconnect-for-a-novel-system-approach-to-short-distance-RFreDaEJjb>
- 154) Abstract and conference invited talk: The case for a photonics foundry in USA
 - a. 27/4/2007
 - b. European Conference on Integrated Optics (2007): Towards foundries for photonic ICs
 - c. <http://www.epixnet.org/index.php?id=393>
- 155) Scalable virtual Ge templates for III-V integration on Si wafers
 - a. 18/4/2012
 - b. AIP Conference Proceedings / Volume 1477 / CONCENTRATOR SOLAR CELLS, CELL ASSEMBLIES AND RELATED MATERIALS
 - c. http://proceedings.aip.org/resource/2/apcpcs/1477/1/36_1?bypassSSO=1
- 156) Video presentation: Living at the speed of light
 - a. 10/12/2009
 - b. Living at the speed of light, hosted by renown physicist Michael Lebby, takes us on a fast paced fly through of the many facets of photonics and how the use of light touches the many aspects of our lives
 - c. National Research Council: Canadian Photonics Fabrication Centre
 - d. <http://www.youtube.com/watch?v=t8EB-1-1irY>
- 157) Keynote address: Global perspectives in optoelectronics and photonics
 - a. 6/12/2006
 - b. Photonics 21: European Union's 7th Framework Program Key Photonics Platform
 - c. http://www.photonics21.org/downloads/download_presentations.php
- 158) Book chapter: Being an Intrapreneur and Entrepreneur in the Optoelectronics Industry
 - a. 2008
 - b. This book provides actual entrepreneurial stories giving insight into the pitfalls and successes one might find in starting or even continuing with a small high-tech business. Insights into innovative, speculative, and (largely) successful new ventures, as experienced by those who went through the process, are complemented by comments and observations from others in the field including researchers, economists, investors, regional development agencies, technology transfer organizations, and universities. The book is recommended to entrepreneurs in all high technology disciplines and in particular for students and early career professionals. It can be also useful for undergraduate and postgraduate courses in entrepreneurship, which many institutions are currently introducing, and to those who are interested in how a high-tech business might develop.
 - c. SPIE: Engineering a High-Tech Business: Entrepreneurial Experiences and Insights By JosÃ© Miguel LÃ³pez-Higuera, B. Culshaw (Editors) ISBN 978-0-8194-7180-2

- d. <http://books.google.com/books?hl=en&lr=&id=wXV9tffoGeYC&oi=fnd&pg=PR9&dq=michael+lebbby&ots=cYEwXIHMDc&sig=KlCtj2ZDgbOYEhmqKdHiMo6SdzA#v=onepage&q=michael%20lebbby&f=false>
- 159) Book chapter: Packaging of Optical Components and Systems
- a. 27/12/2009
 - b. "In this article, several types of semiconductor optical components are introduced, and packaging of optical components and systems will be discussed. Specifically, three common types of optical sources will be addressed: light emitting diodes (LED), edge-emitting semiconductor lasers, and vertical cavity surface emitting lasers (VCSEL).
 - c. Wiley Encyclopedia of Electrical and Electronics Engineering; DOI: 10.1002/047134608X.W2106; originally published in 1999, Vol 15, pp 499-516; John G Webster (Editor)
 - d. <http://onlinelibrary.wiley.com/doi/10.1002/047134608X.W2106/abstract>
- 160) Invited talk: Integrated photonics roadmap synthesis
- a. 7/5/2015
 - b. Integrated Photonics Institute for Manufacturing Innovation (IP-IMI) site visit technical review:
 - c. The University of Southern California's (USC) Information Sciences Institute (ISI) is leading an effort with partner universities at the University of California-Los Angeles (UCLA), the University of California-Berkeley (UCB), the University of California-San Diego (UCSD), Arizona State University, the University of New Mexico, and the Ohio State University, as well as numerous industry partners, to develop the only California-based and led proposal to compete for the IP-IMI award. If successful, the proposal will receive a federal award of up to \$110 million over five years. A successful proposal requires 100 percent or more in matching funds (cash or in-kind) from state and local governments and from industry partners.
 - d. IPI-CDMS (Integrated Photonics Institute and Center for Design and Manufacturing Services)
 - e. <http://www.isi.edu/news/story/531784>
- 161) Video interview: World Photonic Mapping Forum; s'Hertogenbosch, Netherlands
- a. 15/6/2017
 - b. Interview on photonics roadmaps.
 - c. PhotonDelta (via Videographer Jonathan Marks)
 - d. <https://worldtechnologymappingforum.org/the-programme>
- 162) Paper: Relative intensity noise of 780nm vertical cavity surface emitting lasers
- a. 01/1997
 - b. Proceedings of the 1997 Pacific Rim Conference on Lasers and Electro-Optics, CLEO/Pacific Rim, No 46984, Jan 1997
 - c. <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=610586>
- 163) Invited Presentation and abstract: "High-Performance Polymer Photonics for Next-Generation Photonic Integrated Circuits"

- a. 3/10/2016
- b. ECOC Market Focus by ECOC Exhibition
- c. <http://www.ecocexhibition.com/marketfocus>
- 164) Paper: Effect of proton implantation on the degradation of GaAs/AlGaAs vertical cavity surface emitting lasers
 - a. 1997
 - b. Electronics Letters, ISSN 0013-5194, 1997, Volume 33, Issue 2, p. 137
 - c. <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=579434>
- 165) Invited Talk: Photonics Integration Circuits - Global Market Analysis 2017
 - a. 13/3/2017
 - b. Invite by The Netherlands Department of Economics to review PIC technology and markets for potential investment.
 - c. The Dutch Government - Dept of Economics, The Hague together with Photon Delta, The Netherlands
 - d. <http://www.photondelta.eu>
- 166) Invited Talk: Belgium LWLG Investor Group at the Royal Antwerp Golf Club
 - a. 6th Mar 2017
 - b. Invited talk entitled "High performance polymer photonics for next generation PICs"
 - c. Belgium LWLG Investor Group
 - d. <http://www.lightwavelogic.com>
- 167) Technical presentation for Lightwave Logic Inc., at the Annual Shareholder Meeting (ASM).
 - a. 20th May 2016
 - b. Lightwave logic Inc., Boulder, Colorado.
 - c. Annual shareholder meeting for Lightwave Logic Inc., with live presentation with live Q&A from investors
- 168) Paper: Optical bistability in vertical cavity surface emitting lasers with a simple intra-cavity epitaxial absorber layer
 - a. 4th Oct 1998
 - b. Conference Digest: Semiconductor Laser Conference, 1998. ISLC 1998 NARA. 1998 IEEE 16th International
- 169) Course (peer reviewed): "Optoelectronic devices and packaging"
 - a. May 1997
 - b. IEEE ECTC
 - c. <http://www.ectc.net>
- 170) Course (peer reviewed): "Optoelectronic devices and packaging: VCSEL technology"
 - a. May 1998
 - b. IEEE ECTC
 - c. <http://www.ectc.net>
 - d.

- 171) Course (peer reviewed): "Optoelectronic devices and packaging: VCSEL and edge emitter technology"
- a. May 1999
 - b. IEEE Electronics and components technology conference; San Diego, California
 - c. <http://www.ectc.net>
- 172) Plenary Talk: Global Market Research at the World Technology Mapping Forum, s'Hertogenbosch, Netherlands
- a. 14th Jun 2017
 - b. "PhotonDelta and the AIM Photonics Academy are organising the first meeting of the World Technology Mapping Forum. The goal of the forum is to produce the first International Photonic Systems Roadmap, looking ahead to global technology needs in 2030 and beyond.
 - c. PhotonDelta, Netherlands as part of the International Photonics System Roadmap (IPSR) conference
 - d. <https://worldtechnologymappingforum.org/the-programme>
- 173) Paper: Rare-earth-metal oxide buffer for epitaxial growth of single crystal GeSi and Ge on Si(111)
- a. 1st Mar 2012
 - b. Conference and journal publication. "Rare-earth-metal oxide buffer for epitaxial growth of single crystal GeSi and Ge on Si(111)"
 - c. With publication details: 28th North American Molecular Beam Epitaxy Conference, Published by AVS through the American Institute of Physics, 2012 ISBN 978-0-9836933-0-7 ISSN: 2166-27646 J.Vac.Sci.Technol B 30(2), Mar/Apr 2012 pp02B110-1 to pp-3B110-6
 - d. <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?reload=true&arnumber=6118290&contentType=Journals+%26+Magazines>
- 174) Invited talk and abstract: Vertical cavity surface emitting lasers and applications
- a. Sep 1997
 - b. European Laser Workshop, Glasgow, Scotland
- 175) Invited talk and abstract: VCSEL Transceiver technology
- a. Sep 1998
 - b. European Laser Workshop, Madrid, Spain
- 176) Press interview: "Building Big Business with the Next Generation Integrated Circuits!"
- a. 15th Sep 2015
 - b. "Insights from Michael Lebby, CEO OneChip Photonics Corporation, the keynote speaker at the Photonics Integration Conference
 - c. Photonics Integration Conference, organized by Jakajima, Netherlands
 - d. <http://www.phiconference.com/photonics/building-big-business-with-the-next-generation-integrated-circuits/>
- 177) Chairman: PIC (Photonic Integrated Circuits) International Conference, Brussels, Belgium
- a. 7th Mar 2017

- b. "Photonic Integrated Circuits International
- c. CS International
- d. <http://www.picinternational.net>
- 178) Management/CEO presentation for Lightwave Logic Inc., at the Annual Shareholder Meeting (ASM).
 - a. 18th May 2017
 - b. Lightwave logic Inc., Boulder, Colorado.
 - c. Annual shareholder meeting for Lightwave Logic Inc., with live presentation with live Q&A from investors.
- 179) Paper (invited): Laser safety issues with VCSEL arrays in OPTOBUS(tm)
 - a. 1997
 - b. Optical Society of America (OSA); Annual Meeting, Micro-optics session
- 180) Paper and Interviewed Article: Commercial VCSEL Manufacturing
 - a. Apr 1999
 - b. Compound Semiconductor
- 181) Invited talk and abstract: Vertical cavity surface emitting lasers for communication applications
 - a. Oct 1996
 - b. Optical Society of America (OSA) Annual meetings, proceedings, paper WR1, Rochester, NY
- 182) Paper: Structural and Thermal Properties of Single Crystalline Epitaxial Gd₂O₃ and Er₂O₃ Grown on Si(111)
 - a. 2012
 - b. ECS Journal of Solid State Science and Technology 1, N24 (2012)
 - c. <http://jss.ecsdl.org/content/1/2/N24.full.pdf+html>
- 183) Invited talk and abstract: VCSEL Arrays and GUIDECASTM packaging technology as used in OPTOBUS(tm)
 - a. Sep 1995
 - b. European Laser Workshop, Eindhoven, Netherlands
- 184) Invited talk and abstract: Ridge Waveguide and Planar VCSEL Device Reliability
 - a. Sep 1996
 - b. European Laser Workshop, Oslo, Norway
- 185) Paper: An n-channel BICFET in the GaAs/AlGaAs material system
 - a. Feb 1989
 - b. "Electron Device Letters, IEEE Volume: 10, Issue: 2 Digital Object Identifier: 10.1109/55.32438 Publication Year: 1989 , Page(s): 88 - 90"
 - c. <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=32438&tag=1>
- 186) Book chapter: "Optical sources: Light-emitting diodes and laser technology"
 - a. Published 2002
 - b. "The Handbook includes chapters on all the major industry standards, quick reference tables, helpful appendices, plus a new glossary and list of acronyms. This practical handbook can stand alone or as a companion volume to DeCusatis:

- Fiber Optic Data Communication: Technological Advances and Trends (February 2002, ISBN: 0-12-207892-6), which was developed in tandem with this book.
- c. Academic Press (1998, 2002); ISBN: 0-12-207892-6; Handbook of Fiber Optic Data Communication By Casimer DeCusatis
 - d. http://books.google.com/books?id=Rlb61KknI8IC&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false
- 187) Book chapter: "Semiconductor laser and light emitting diode fabrication"
- a. Published 2002
 - b. "The Handbook includes chapters on all the major industry standards, quick reference tables, helpful appendices, plus a new glossary and list of acronyms. This practical handbook can stand alone or as a companion volume to DeCusatis: Fiber Optic Data Communication: Technological Advances and Trends (February 2002, ISBN: 0-12-207892-6), which was developed in tandem with this book.
 - c. Academic Press: Editor DeCusatis: Fiber Optic Data Communication: Technological Advances and Trends (February 2002, ISBN: 0-12-207892-6)
 - d. <http://books.google.com/books?id=Rlb61KknI8IC&lpg=PP1&pg=PP1#v=onepage&q&f=false>
- 188) Invited talk and abstract: Ridge waveguide VCSEL device performance
- a. May 1995
 - b. USA Laser workshop, CLEO, Anaheim, California
- 189) Keynote speech: Next decade in fiber optic communications
- a. 30th Apr 2001
 - b. Electroicast: 13th Annual Fiber Optics for the Next Decade Conference
 - c. <http://www.photonics.com/Article.aspx?AID=8916>
- 190) Reviewer: European Commission ICT-29-2016: Photonics KET 2016 (section a(ii) Breakthrough in miniaturization of SSL light engines and systems)
- a. 5th Nov 2016
 - b. European Commission: Reviewing submitted technical photonics proposals for Horizon 2020, and rate proposals to EU guidelines.
 - c. <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5094-ict-29-2016.html>
- 191) Invited talk and abstract: Polymer based PICs
- a. 14th Sep 2017
 - b. ECOC, Datacenter technologies. Sweden
- 192) Video: Polymer based PICs
- a. 15th Sep 2017 ECOC, Sweden as part of Market Focus at the ECOC Exhibit. (youtube: Michael Lebby ECOC 2017)
- 193) Keynote invited talk and abstract: PIC based technologies
- a. 22nd Sep 2017
 - b. PIC Conference, The Netherlands
- 194) Invited talk and abstract: Polymer PIC technology as part of the Photonics Integrated Circuits (PIC) conference in Eindhoven, Netherlands.
- a. 5th Oct 2017

- b. PIC technologies and polymer photonics
- 195) Invited talk: PIC Training conference/workshop in Sunnyvale, Silicon Valley
 - a. PIC training session/workshop
- 196) Invited talk: Photonics Pilot Lines
 - a. 8th Dec 2017
 - b. European Commission, Photonics Proposers Meeting, Brussels
- 197) International Roadmap meeting at Berenshot, Utrecht, Netherlands
 - a. 20th Jan 2018
 - b. Invited talk: International Roadmap meeting: Datacom/Telecom ICT markets, AOC, and Polymer PIC technology platforms
- 198) Co-Chairman: PIC (Photonic Integrated Circuits), International Conference, Brussels, Belgium
 - a. 10th Apr 2018
 - b. Photonic Integrated Circuits International
 - c. CS International
 - d. <http://www.picinternational.net>
- 199) Session chair and moderator: High volume, high performance PICs (Photonic Integrated Circuits) at the International Conference, Brussels, Belgium
 - a. 10th Apr 2018
 - b. Photonic Integrated Circuits International
 - c. CS International
 - d. <http://www.picinternational.net>
- 200) Session chair and moderator: Silicon Photonics (SiP) PICs (Photonic Integrated Circuits) at the International Conference, Brussels, Belgium
 - a. 11th Apr 2018
 - b. Photonic Integrated Circuits International
 - c. CS International
 - d. <http://www.picinternational.net>
- 201) Invited Talk: Scalable PIC platforms: “The impact of using polymer PICs for 100 and 400Gbps datacom applications,” PICs (Photonic Integrated Circuits) at the International Conference, Brussels, Belgium
 - a. 10th Apr 2018
 - b. Photonic Integrated Circuits International
 - c. CS International
 - d. <http://www.picinternational.net>
- 202) Management/CEO presentation for Lightwave Logic Inc., at the Annual Shareholder Meeting (ASM).
 - a. 17th May 2018
 - b. Lightwave logic Inc., Denver, Colorado.
 - c. Annual shareholder meeting for Lightwave Logic Inc., with live presentation with live Q&A from investors.
- 203) Workgroup chair and moderator: Telecom, Datacom, and ICT roadmap committee at the International world mapping conference, Enschede, Netherlands

- a. 20th Jun 2018
- b. Photondelta Conference: chairing technical workgroup meetings to address photonics roadmap trends and challenges.
- c. Photondelta in coordination with iNEMI, and AIM photonics.
- d. <https://www.photondelta.eu>
- 204) Workgroup chair and moderator: Telecom long haul roadmap committee at the International world mapping conference, Enschede, Netherlands
 - a. 20th Jun 2018
 - b. Photondelta Conference: chairing technical workgroup meetings to address photonics roadmap trends and challenges.
 - c. Photondelta in coordination with iNEMI, and AIM photonics.
 - d. <https://www.photondelta.eu>
- 205) Reviewer: European Commission ICT-03-2018: Photonics Pilot lines (InP and silicon photonics PICs)
 - a. 11th Jun 2018
 - b. European Commission: Reviewing submitted technical photonics proposals for Horizon 2020, and rate proposals to EU guidelines.
 - c. <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020>
- 206) Reviewer: European Commission ICT-04-2018: Tbps optical fiber optic transceivers
 - a. 11th Jun 2018
 - b. European Commission: Reviewing submitted technical photonics proposals for Horizon 2020, and rate proposals to EU guidelines.
 - c. <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020>
- 207) Reviewer: European Commission ICT-04-2018: Connected lighting
 - a. 11th Jun 2018
 - b. European Commission: Reviewing submitted technical photonics proposals for Horizon 2020, and rate proposals to EU guidelines.
 - c. <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020>
- 208) Invited talk and abstract: Pushing the performance of 50Gbps NRZ polymer modulators towards 100Gbps NRZ in a PIC platform to access 400 and 800Gbps data-rates
 - a. 25th Sep 2018
 - b. ECOC, Datacenter technologies. Sweden
- 209) Video: Pushing the performance of 50Gbps NRZ polymer modulators towards 100Gbps NRZ in a PIC platform to access 400 and 800 Gbps datarates.
 - a. 25th Sept 2018
 - b. ECOC, Market Focus at the ECOC Exhibit, (Youtube: Michael Lebby ECOC 2018)
- 210) Invited talk and abstract: ECOC [International Symposium on Hybrid PICs](#) entitled "Polymer PICs: technology and prospects"
 - a. 26th Sept 2018

- b. International Symposium on Hybrid PICs co-located at the ECOC conference, Rome, Italy.
- 211) Reviewer (European Commission) for pilot line PISCALE
 - a. 18th Sept 2018
 - b. European Commission, Brussels
 - c. PISCALE is a pilot line that is focused on bringing to commercial market flexible organic display technologies in both panel and reel to reel formats.
- 212) Reviewer (European Commission) for pilot line MIPHAB
 - a. 19th Sept 2018
 - b. European Commission, Brussels
 - c. MIPHAB is a pilot line that is focused on bringing to commercial market near infra-red devices and packaging for industrial, defense, military and high volume applications.
- 213) Reviewer (European Commission) for pilot line PIXAPP
 - a. 2nd Oct 2018
 - b. European Commission, Brussels
 - c. PIXAPP is a pilot line that is focused on bringing to commercial market PIC (photonic integrated circuit) packaging solutions for InP and silicon photonics based technologies.
- 214) Reviewer (European Commission) for pilot line PIX4LIFE
 - a. 3rd Oct 2018
 - b. European Commission, Brussels
 - c. PIX4LIFE is a pilot line that is focused on bringing to commercial market PIC dielectric solutions for applications in the visible wavelength range in the medical applications market.
- 215) Reviewer (European Commission) for pilot line MIPHAB
 - a. 16th Feb 2019
 - b. European Commission, Brussels
 - c. MIPHAB is a pilot line that is focused on bringing to commercial market near infra-red devices and packaging for industrial, defense, military and high volume applications.
- 216) Reviewer (European Commission) for pilot line PIX4LIFE
 - a. 25th Mar 2019
 - b. European Commission, Brussels
 - c. PIX4LIFE is a pilot line that is focused on bringing to commercial market PIC dielectric solutions for applications in the visible wavelength range in the medical applications market.
- 217) Reviewer (European Commission) for project CARDIS
 - a. 18th Apr 2019
 - b. European Commission, Brussels
 - c. CARDIS is an EU project for PIC based technology to monitor blood flow and artery stiffness in the human body using long wavelength lasers and silicon photonics.

- 218) Reviewer: European Commission ICT-03-2019: Fiber optic communications and bio-photonics for medical applications
 - a. 6th June 2019
 - b. European Commission: Reviewing submitted technical photonics proposals for Horizon 2020, and rate proposals to EU guidelines.
 - c. <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020>
- 219) Reviewer: European Commission ICT-05-2019: Pilot lines (free form optics and integrated photonics for bio-medical applications)
 - a. 16th June 2019
 - b. European Commission: Reviewing submitted technical photonics proposals for Horizon 2020, and rate proposals to EU guidelines.
 - c. <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020>
- 220) Reviewer (European Commission) for pilot line PISCALE
 - a. 11th Sept 2019
 - b. European Commission, Brussels
 - c. PISCALE is a pilot line that is focused on bringing to commercial market flexible organic display technologies in both panel and reel to reel formats.
- 221) Invited talk: Polymer modulators and polymer PIC technologies: PIC Training conference/workshop in Sunnyvale, Silicon Valley
 - a. 28th Jan 2019
 - b. PIC training session/workshop at Keysight facility
- 222) Co-Chairman: PIC (Photonic Integrated Circuits), International Conference, Brussels, Belgium
 - a. 26-27th Mar 2019
 - b. Photonic Integrated Circuits International
 - c. CS International
 - d. <http://www.picinternational.net>
- 223) Session chair and moderator: High volume, high performance PICs (Photonic Integrated Circuits) for Foundries at the International Conference, Brussels, Belgium
 - a. 26th Mar 2019
 - b. Photonic Integrated Circuits International
 - c. CS International
 - d. <http://www.picinternational.net>
- 224) Session chair and moderator: High volume PICs (Photonic Integrated Circuits) at the International Conference, Brussels, Belgium
 - a. 27th Mar 2019
 - b. Photonic Integrated Circuits International
 - c. CS International
 - d. <http://www.picinternational.net>
- 225) Invited Talk: Polymer PICs for 400Gbps+ datacom applications,” PICs (Photonic Integrated Circuits) at the International Conference, Brussels, Belgium
 - a. 27th Mar 2019
 - b. Photonic Integrated Circuits International

- c. CS International
- d. <http://www.picinternational.net>
- 226) Management/CEO presentation for Lightwave Logic Inc., at the Annual Shareholder Meeting (ASM).
 - a. 16th May 2019
 - b. Lightwave logic Inc., Denver, Colorado.
 - c. Annual shareholder meeting for Lightwave Logic Inc., with live presentation with live Q&A from investors with presentation:
<https://drive.google.com/file/d/1wh8irF8rmi9bU6VeGKAHFqVURyUcytdX/view?usp=sharing>
- 227) Workgroup chair and moderator: Datacom roadmap committee at the International world mapping conference, Berlin, Germany
 - a. 12th June 2019
 - b. Photondelta Conference: chairing technical workgroup meetings to address photonics roadmap trends and challenges.
 - c. Photondelta in coordination with iNEMI, and AIM photonics.
 - d. <https://www.photondelta.eu>
- 228) Keynote speaker: ‘Global markets for PIC technologies’ at the 3rd International world mapping conference, at the Fraunhofer HHI, Berlin, Germany
 - a. 15th June 2019
 - b. Photondelta Conference: chairing technical workgroup meetings to address photonics roadmap trends and challenges.
 - c. Photondelta in coordination with iNEMI, and AIM photonics.
 - d. <https://www.photondelta.eu>
- 229) Invited speaker: ‘Lightwave Logic polymer modulator platform’ at the Spring Investor Conference, NYC, NY
 - a. 2nd April 2019
 - b. Spring Investor Summit (Microcap Conference) (www.springinvestorsummit.com)
- 230) Invited video ‘Lightwave Logic polymer modulator platform’ at the Spring Investor Conference, NYC, NY
 - a. 2nd April 2019
 - b. Spring Investor Summit (Microcap Conference)
 - c. <https://www.youtube.com/watch?v=Mn4oICQpVTQ>
- 231) Invited video Interview by EPIC CTO Jose Pozo in EPIC’s Photonics Industry Luminary video series.
 - a. 28th Jan 2019 (at Photonics West conference in San Francisco)
 - b. EPIC Trade Association, Europe
 - c. https://www.youtube.com/watch?v=e_V4TeTSwaM
- 232) Invited video ‘Global Markets and Trends’ at the 3rd International Roadmap conference, Faunhofer HHI, Berlin Germany
 - a. 16th June 2019
 - b. PhotonDelta video PR team
 - c. <https://vimeo.com/341952732>

- 233) Invited video ‘Lightwave Logic roadmaps for polymer photonics at the 3rd International Roadmap conference, Eindhoven, Netherlands
 - a. 16th June 2017
 - b. PhotonDelta video PR team
 - c. <https://vimeo.com/317216466>
- 234) Invited video ‘Welcome to WTMF 18’ at the 2nd International Roadmap conference, Eindhoven, Netherlands
 - a. 12th June 2018
 - b. PhotonDelta video PR team
 - c. <https://vimeo.com/275376937>
- 235) Reviewer (European Commission) for pilot line PISCALE
 - a. 11th Sept 2019
 - b. European Commission, Brussels
 - c. PISCALE is a pilot line that is focused on bringing to commercial market flexible organic display technologies in both panel and reel to reel formats.
- 236) Invited talk and abstract: “Polymer modulators with >50GHz performance for power consumption reduction at 400, 800, and 1600 Gbaud aggregated data-rates”
 - a. 24th Sept 2019
 - b. Market Focus Session, Photonics Integration and Digital Silicon Photonics,
 - c. ECOC 2019, Dublin, Ireland
 - d. <https://www.ecocexhibition.com/visit/market-focus/market-focus-2019-timetable/>
- 237) Video: Polymer modulators with >50GHz performance for power consumption reduction at 400, 800, and 1600 Gbaud aggregated datarates”
 - a. 24th Sept 2019
 - b. ECOC, Market Focus at the ECOC Exhibit, (Youtube: Michael Lebby ECOC 2019)
 - c. ECOC 2019, Dublin, Ireland
- 238) Invited talk and abstract: ECOC International Symposium on Hybrid PICs entitled “Polymer modulators enable the next generation of speeds and low power in optical networks”
 - a. 22nd Sept 2019
 - b. International Symposium and workshop (WO5) on Hybrid PICs,
 - c. ECOC conference 2019, Dublin, Ireland
 - d. <https://www.ecoc2019.org/workshop.html>
- 239) Chairman and moderator, Market Focus ECOC 2019 session: Service and Content Provider Optical Transmission
 - a. 24th Sept 2019
 - b. Market Focus Session #5, ECOC 2019, Dublin, Ireland
 - c. <https://www.ecocexhibition.com/visit/market-focus/market-focus-2019-timetable/>
- 240) Chairman and moderator, Market Focus ECOC 2019 session: Optical Network Agility/Software Defined Networks
 - a. 24th Sept 2019

- b. Market Focus Session #7, ECOC 2019, Dublin, Ireland
- c. <https://www.ecocexhibition.com/visit/market-focus/market-focus-2019-timetable/>
- 241) Reviewer (European Commission) for pilot line MIPHAB
 - a. 10th Dec 2019
 - b. European Commission, Brussels
 - c. MIPHAB is a pilot line that is focused on bringing to commercial market near infra-red devices and packaging for industrial, defense, military and high-volume applications.
- 242) Webinar: Wall Street resource
 - a. 9th Jan 2020
 - b. Lightwave Logic HQ facilities in Denver, Colorado
 - c. A 30min recorded webinar answering questions on Lightwave Logic and its business plans, technology and plans for the future.
- 243) Invited video Interview by EPIC in EPIC's Photonics Industry video series on European funded pilot lines.
 - a. 5th Feb 2020 (at Photonics West conference in San Francisco)
 - b. EPIC Trade Association, Europe
- 244) Reviewer (European Commission) for pilot line InPULSE
 - a. 19th Mar 2020
 - b. European Commission, Brussels
 - c. InPULSE is a pilot line that is focused on bringing to commercial market InP based photonic integrated circuits (PICs) for fiber communications, both datacom as well as telecom high-volume applications.
- 245) Keynote and Plenary speaker SPIE Photonics Europe International Conference
 - a. Originally 31st March (then moved to 7th April 2020)
 - b. Strasbourg, France (the plenary talk was completed using audio embedded powerpoint video remotely).
 - c. The conference was held virtually in 2020 and the talk was attended by over 1000 attendees/visits.
 - d. <https://spie.org/profile/michael.lebby-4009?SSO=1>
- 246) Co-Chair (and summit host) of online summit for PIC International virtual session with live Q&A.
 - a. 19th May 2020
 - b. Hosted by Angel Tech (<https://onlinesummit.angel-tech.net/breakout/pic-international>)
 - c. Virtual conference with combination of pre-recorded presentations, live presentations, and live Q&A. Over 150 attendees.
- 247) Chairman (elected) of ECOC Market Focus technical committee as part of the ECOC Exhibition.
 - a. 10th May 2020
 - b. Committee hosted and organized by ECOC Exhibition
 - c. Market Focus Committee at : <https://www.ecocexhibition.com/visit/market-focus/>

- d.
- 248) Invited video clip on PIC technologies for online summit of PIC International conference.
 - a. 19th May 2020
 - b. Video clip (2:04) can be found at <https://onlinesummit.angel-tech.net/breakout/pic-international>
 - c. Summit host's introduction to the online summit PIC conference.
- 249) Invited speaker, EPIC 24hr Photonics World Tour virtual conference with talked entitled; "EO Polymers enable high speed and low power modulators at 1550nm and 1310nm."
 - a. 24th Jun 2020
 - b. EPIC 24hr Photonics World Tour final talk #72 and concluding remarks.
 - c. <https://www.epic-assoc.com/24hours/> and video on Youtube at: <https://www.youtube.com/watch?v=aiUSlfxPlz0> starting at 46:00
- 250) Invited speaker and presentation at Lightwave Logic Annual Shareholder meetings 2020 with Business Management Update, and presentation entitled, "Lightwave logic business review"
 - a. 14th May 2020
 - b. Presentation can be found at: https://drive.google.com/file/d/1xfisLKe6QIykCAIMjOZ0XdIR-Ht_O7zZ/view?usp=sharing
 - c. Hosted by Lightwave Logic Inc. and MZ Group (Investor Relations)
- 251) Invited paper/article entitled, "Electro-Optic Polymers Improve Speed and Power Efficiency" with co-authors Karen Liu and Cory Pecinovsky, Lightwave Logic Inc.
 - a. 5th Aug 2020
 - b. Published by Photonics Spectra magazine,
 - c. Hosted by photonics.com https://www.photonics.com/Articles/Electro-Optic_Polymers_Improve_Speed_and_Power/p5/vol180/i1193/a65902
- 252) Invited video interview, "2020 Market Focus and technology trends for ECOC 2020, Brussels, Belgium" as Chairman of ECOC 2020 Market Focus Technical Committee
 - a. 5th Aug 2020
 - b. Market Focus Exhibition for ECOC 2020,
 - c. Hosted by ECOC exhibition: <https://www.ecocexhibition.com/visit/market-focus/>
- 253) Invited speaker, EPIC Virtual Conference on Datacenters (in collaboration with EA and COBO) with presentation entitled; "Using polymer modulators to upgrade your PIC + Industry Roadmaps."
 - a. 4th Nov 2020
 - b. EPIC Trade Association and subsequent YouTube video (<https://www.youtube.com/watch?v=tHh-z724D2g>) and also at EPIC: <https://www.epic-assoc.com/epic-online-technology-meeting-on-datacenter-interconnects-in-cooperation-with-cobo-and-ea/>
 - c. Hosted by EPIC

- 254) Chair and invited speaker, PIC International virtual conference on PICs: PIC Virtual II with presentation entitled; “Optical devices and industry roadmaps.”
- 2nd Nov 2020
 - PIC International Conference,
(https://picmagazine.net/article/112351/AngelTech_Virtual_2_-_The_Sequel_Proves_A_Hit_Success) and (<https://onlinesummit.angel-tech.net>)
 - Hosted by CS International and PIC International (Angel Business, London)
- 255) Reviewer (European Commission) for pilot line PIX4LIFE
- 2nd Dec 2020
 - European Commission, Brussels (virtual review)
 - PIX4LIFE is a pilot line that is focused on bringing to commercial market PIC dielectric solutions for applications in the visible wavelength range in the medical applications market.
- 256) Invited speaker, EPIC Photonics Plus conference (virtual) with a talk entitled “Polymer Plus™: Upgrading your PIC with Ultrafast and Low Power Modulators.”
- 16th Feb 2021
 - EPIC Trade Association <https://photonicsplus.com> and also at EPIC: <https://photonicsplus.com/exhibitors/>
 - Hosted by EPIC
- 257) Invited video ‘Lightwave Logic advancing its silicon photonic prototypes’ by Proactive, (<https://www.proactiveinvestors.com>)NY
- 2nd April 2019
 - Proactive video (Wall St) series:
<https://www.youtube.com/watch?v=3B0oGXvyogA>
 - Lightwave Logic, Inc. (OTCQX: LWLG) CEO Michael Lebby tells Proactive the Englewood, Colorado-based technology platform company is in discussions with large and small players within the telecommunications and data-communications space, including companies who are involved in the manufacturing routers.
- 258) Invited speaker (updated virtual presentation), EPIC Photonics Plus conference (virtual) with a talk entitled “Commercializing Polymer Modulators.”
- 10th Mar 2021
 - EPIC Trade Association <https://photonicsplus.com> and also at <https://www.lightwavelogic.com/presentation/video-presentation-commercializing-polymer-modulators/>
 - Hosted by EPIC
- 259) Invited Webinar and panelist: Roth Capital Partners
(<https://www.roth.com/Page/Corporate-Access-Past-Conferences>)
- 17th Mar 2021
 - 33rd Annual Roth Conference
 - Financial investment conference for public company review. Panelist for answering questions by bankers, investment specialists, and fund managers on Lightwave Logic and its business plans, technology and plans for the future.

- 260) Invited white paper/article entitled, “Polymers for Fiber Optic Communications: What does the Integrated Photonics Roadmap Say” co-authors Michael Lebby and Karen Liu, Lightwave Logic Inc.
- 24th Mar 2021
 - Published by Lightwave Logic Inc., (https://www.lightwavelogic.com/wp-content/uploads/sites/319/2021/03/WP_IPSR-Roadmap-Decoded.pdf)
 - Executive summary: The IPSR (Integrated Photonic Systems Roadmap), a recent broad collaboration that unified the efforts of multiple established photonics roadmap efforts, describes the key technology bottlenecks for a broad array of applications and most promising solutions to overcome them. This whitepaper highlights the portion of the roadmap specific to fiber optic communications and within that the implications for the role of electro-optic polymers. Key findings identify critical advances that will be needed over the next decade to support the growth of very high data rate applications. By the end of the decade, integration of electronics with photonics will be part of broad integrated platforms. Innovative materials technologies such as polymers can be useful to enhance integrated photonics platforms with the use of high- speed modulators and passive optical interconnects.
- 261) Reviewer (European Commission) for pilot line Phabulous
- 31st Mar 2021
 - Via European Commission (virtual review)
 - Phabulous is a pilot line that is focused on bringing to commercial market micro-optics and free-form optics technology. Focus is on SMEs, prototyping and small volume manufacturing.
- 262) Chair and invited speaker, PIC International virtual conference on PICs: PIC Virtual III with presentation entitled; “Integrated photonic roadmaps.”
- 12th Apr 2021
 - PIC International Conference,
(https://picmagazine.net/article/112351/AngelTech_Virtual_2_-_The_Sequel_Proves_A_Hit_Success) and (<https://onlinesummit.angel-tech.net>)
 - Hosted by CS International and PIC International (Angel Business, London)
- 263) Reviewer (European Commission) for pilot line InPULSE (also known as Jeppix)
- 23rd Apr 2021
 - Via European Commission (virtual review)
 - InPULSE is a pilot line that is focused on bringing to commercial market InP based photonic integrated circuits (PICs) for fiber communications, both datacom as well as telecom high-volume applications.
- 264) Invited speaker, EPIC Virtual Conference on PIC Packaging with presentation entitled; “Integrated photonics roadmaps: enabling high performance packaging.”
- 26th Apr 2021
 - EPIC Trade Association and subsequent YouTube video
(<https://www.youtube.com/watch?v=tHh-z724D2g>) and also at EPIC:
<https://www.epic-assoc.com/epic-online-technology-meeting-on-pic-packaging/>

- c. Hosted by EPIC
- 265) Invited conference and panelist: Oppenheimer 6th Annual Virtual Emerging Growth Conference (<https://www.oppenheimer.com/events/2021/6th-annual-emerging-growth-conference.aspx>)
 - a. 11th May 2021
 - b. Oppenheimer 6th Annual Virtual Emerging Growth Conference.
 - c. Financial investment conference for public company review. Panelist for answering questions with a variety of bankers, investment specialists, and fund managers on Lightwave Logic and its business plans, technology and plans for the future.
- 266) Invited speaker and presentation at Lightwave Logic Annual Shareholder meetings 2021 with Business Management Update, and presentation entitled, “Lightwave logic business review”
 - a. 27th May 2021
 - b. Presentation can be found at: <https://www.lightwavelogic.com/presentation/2021-asm-business-update-por-lightwave-logic-ceo-dr-michael-lebby/>
 - c. Hosted by Lightwave Logic Inc. and MZ Group (Investor Relations)
- 267) Keynote speaker for PITC opening ceremony with presentation entitled, “Photonic Integrated Circuits (PICs): Enabling our future...”
 - a. 2nd June 2021
 - b. Agenda at: <https://brainporteindhoven.com/en/events/launch-photonics-integration-techology-center> and presentation at: <https://www.lightwavelogic.com/presentation/photonic-integration-technology-center-keynote/>
 - c. Hosted by PITC (Photonics Integrated Technology Center); Photon Delta, TNO, Eindhoven University, Twente University.
- 268) Invited speaker: LD Micro Invitational XI conference (virtual) with presentation entitled, “Lightwave Logic Investor Presentation”
 - a. 10th June 2021
 - b. Presentation at: <https://api.mziq.com/mzfilemanager/v2/d/307dbc8b-e212-48ba-9968-8cef3f6b5188/8c054319-48a6-bd6b-2a0c-66e56f5f489f?origin=2>
 - c. Hosted by LD Micro NASDAQ: SRAX
- 269) Invited video interview: “2021 Market Focus and technology trends for ECOC 2021, Bordeaux, France” as Chairman of ECOC 2021 Market Focus Technical Committee
 - a. 15th June 2021
 - b. Market Focus Exhibition for ECOC 2021,
 - c. Hosted by ECOC exhibition: <https://www.ecocexhibition.com/visit/market-focus/>
- 270) Invited speaker at HC Wainwright non-deal roadshow (virtual)
 - a. 3rd and 4th August 2021
 - b. Presentation of “Lightwave Logic investor presentation”
 - c. Hosted by HC Wainwright Investment Bank
- 271) Invited speaker at Q3 Investor Summit (virtual)

- a. 17th and 18th August 2021
- b. Presentation of “Lightwave Logic investor presentation” and link: <https://drive.google.com/file/d/1mH0bCzOd8UxtvN6FeR50KIP7moFsFhjJ/view?usp=sharing>
- c. Hosted by Investor Summit (<https://investorsummitgroup.com>)
- 272) Invited speaker and video recording at HC Wainwright conference (virtual)
 - a. 13-15th September 2021
 - b. Presentation of “Lightwave Logic investor presentation”
 - c. Hosted by HC Wainwright Investment Bank
- 273) Invited speaker and video interview at NASDAQ for 10th September 2021 marketing closing. Live interview at NASDAQ HQ in Times Square, NYC.
 - a. 10th September 2021
 - b. Live interview for TV networks of Lightwave Logic’s aspirations.
 - c. Hosted by NASDAQ at their TV studios:
<https://www.nasdaq.com/videos/lightwave-logic-inc.-rings-the-nasdaq-stock-market-opening-bell>
- 274) Invited interview to close the week of trading at NASDAQ on 10th September, 2021 with live speech, and televised session. The closing was carried by CNBC, FOX, Bloomberg, BNN networks during the close session.
 - a. 10th September, 2021
 - b. Live interview for Lightwave Logic, and live market closing for NASDAQ
 - c. Hosted by NASDAQ at their TV studios: <https://youtu.be/8dmHC8MeF6E>
- 275) TV and video interview by TD Ameritrade in conjunction with the ringing of the closing bell at NASDAQ on 10th September, 2021
 - a. 10th September 2021
 - b. Live TV interview on TD Ameritrade at NASDAQ studios, Time Square, NYC
 - c. Hosted by TD Ameritrade financial network;
<https://tdameritradenetwork.com/video/rB4A-HvPH-2Be9Hw1tYC0w>
- 276) Session chairman: ECOC Market Focus technical committee as part of the ECOC Exhibition: sessions included PIC and Silicon Photonics, Optics in Cloud computing, optical transmission (SDN, network agility), Fiber Access, 5G, Cable, PON, FTTX, FTTC, Fiber to the room, New technologies and optical systems, New markets, and new packaging platforms.
 - a. 13th September 2020
 - b. Committee hosted and organized by ECOC Exhibition
 - c. Market Focus Committee at: : <https://www.ecocexhibition.com/visit/market-focus/>
- 277) Invited video interview: “2021 Market Focus impact for ECOC 2021, Bordeaux, France” as Chairman of ECOC 2021 Market Focus Technical Committee at the conference by ECOC TV <https://www.youtube.com/watch?v=VrFeSwqnWak>
 - a. 13th September 2021
 - b. Market Focus Exhibition for ECOC 2021,

- c. Hosted by ECOC exhibition: <https://www.ecocexhibition.com/visit/market-focus/with-video-at>
- 278) Invited talk and abstract: “Advancing integrated photonics with elector-optic polymer modulators”.
 - a. 13th September 2021
 - b. Market Focus Session, PIC and SiPH/Datacenters/Optics in cloud computing, <https://www.ecocexhibition.com/visit/market-focus/market-focus-2021-session-details/>
 - c. ECOC 2021, Bordeaux, France
- 279) Winner: Acceptance of glass trophy for ECOC Industry awards on behalf of Lightwave Logic in the optical integration category: <https://www.ecocexhibition.com/visit/ecoc-exhibition-industry-awards/>
 - a. 14th September 2021
 - b. Product Focus session, ECOC Exhibition Industry Award Winner Announcement
 - c. ECOC 2021, Bordeaux, France
- 280) Interview: ECOC Industry awards on behalf of Lightwave Logic in the optical integration category by ECOC TV
 - a. 14th September 2021
 - b. Product Focus session, ECOC Exhibition Industry Award Winner Announcement
 - c. ECOC 2021, Bordeaux, France
- 281) Video interview: PIC International Conference November 9-11, Brussels, Belgium
 - a. 24th September 2021
 - b. Overview of conference, technical sessions, and integrated photonics
 - c. PIC International, Brussels, Belgium as part of the online web portal presence.
- 282) Reviewer (European Commission) for pilot line InPULSE (also known as Jeppix)
 - a. 21st Sep 2021
 - b. Via European Commission (virtual review)
 - c. MedPhab is a pilot line that is focused on bringing to commercial market silicon photonics based technologies for medical applications. Demonstrator use-cases as prototype products have been selected for the validation of the pilot line technologies covering both *in-vivo* and *in-vitro* domains. The cases include: manufacturing a disposable plasmonic-fluidic sensors and a wearable PCI temperature sensor.
 - d. <https://medphab.eu>
- 283) Reviewer: (European Commission) for pilot line MIRPHAB
 - a. 28th Sep 2021
 - b. Via European Commission (virtual review)
 - c. MIRPHAB is a pilot line that is focused on bringing to commercial market infrared wavelength modules and technologies based on quantum cascade lasers, MIR detectors, Antimonide based compound semiconductors and their associated packaging.

- d. <https://www.iaf.fraunhofer.de/en/research/research-areas/semiconductor-lasers/mirphab.html>
- 284) Reviewer: (European Commission) for project InSiDe
 - a. 29th Apr 2019
 - b. European Commission, Brussels
 - c. InSiDe is an EU project for PIC based technology in the medical field to monitor blood flow and artery stiffness in the human body using long wavelength lasers and silicon photonics. Hospital clinical trials will be conducted. It is a follow-on with more clinical trials from the initial CARDIS EU project.
 - d. <http://www.inside-h2020.eu>
- 285) Reviewer: (European Commission) for pilot line InPULSE (also known as Jeppix)
 - a. 1st Oct 2021
 - b. Via European Commission (virtual review)
 - c. InPULSE is a pilot line that is focused on bringing to commercial market InP based photonic integrated circuits (PICs) for fiber communications, both datacom as well as telecom high-volume applications.
 - d. <https://www.inpulse.jeppix.eu>
- 286) Invited Video presentation: LD Micro Main Investor conference entitled “Investor Presentation for LD Micro”
 - a. 12th October 2021
 - b. For virtual attendees at the LD Micro conference in Los Angeles (Luxe Hotel), California
 - c. Invited video presentation for virtual audience at LD Micro main event in LA California: https://www.meetmax.com/sched/event_76871/conference_home.html
 - d. <https://www.youtube.com/watch?v=JEvSV8qYGMA>
- 287) Invited audio interview: LD Micro for BIZPOD (the Drill Down by Cory Johnson).
 - a. 12th October 2021
 - b. Located at LD Micro main in LA, California
 - c. BIZPOD audio interview as part of their start-up entrepreneur series: <https://www.bizpod.net>
- 288) Invited oral presentation: Includes Q&A for LD Micro Main Investor conference entitled “Investor Presentation for LD Micro”
 - a. 12th October 2021
 - b. For live in-person attendees at the LD Micro conference in Los Angeles (Luxe Hotel), California
 - c. Invited live presentation on Lightwave Logic technology and business plans for virtual audience at LD Micro main event in LA California: https://www.meetmax.com/sched/event_76871/conference_home.html
 - d. <https://www.youtube.com/watch?v=JEvSV8qYGMA> and https://me21.mysequire.com/recording?session_id=d354f581-6ab6-47d9-99de-d642c1c25d87

- 289) Invited Video presentation: Ladenburg Thalmann Virtual Technology Expo conference entitled “Investor Presentation for Ladenburg Thalmann virtual Technology Expo Investor Presentation”
- Video-taped on 27th October 2021 for release on 18th November 2021
 - For virtual attendees at the Thalmann Virtual Technology Expo conference.
 - Invited video presentation for virtual audience at 2021 Ladenburg Thalmann Virtual Technology Expo: <https://ladenburg21.mysequire.com>
 - Presentation can be found at: <https://ladenburg21.mysequire.com>
- 290) Session Chairman: 2nd PIC Pilot Line Conference, , www.picinternational.net,
- 7th November 2021
 - As of the conference hosted by Angel events.
 - Sheraton Airport Hotel, Brussels, Belgium.
- 291) Keynote speaker: Includes presentation entitled, “PIC Pilot Lines: Competitive Positioning” as part of the of 2nd PIC Pilot Line Conference, , www.picinternational.net,
- 7th November 2021
 - As of the conference hosted by Angel events.
 - Sheraton Airport Hotel, Brussels, Belgium.
- 292) Session chairman: 6th PIC International conference, www.picinternational.net
- 8-10th November 2021
 - Conference hosted by Angel events together with CS International, SSI International, and PIC Pilot Line Conference.
 - Sheraton Airport Hotel, Brussels, Belgium.
- 293) Invited Panelist: For the panel entitled, “PICs for LIDAR” of 6th PIC International conference, www.picinternational.net
- 8-10th November 2021
 - Conference hosted by Angel events together with CS International, SSI International, and PIC Pilot Line Conference.
 - Sheraton Airport Hotel, Brussels, Belgium.
- 294) Invited speaker: With presentation entitled, “Increasing power efficiency with electro-optic (EO) polymers” at the 6th PIC International conference, www.picinternational.net in the day 2 session, “PICs vision- evolution and revolution”
- 8-10th November 2021
 - Conference hosted by Angel events together with CS International, SSI International, and PIC Pilot Line Conference.
 - Sheraton Airport Hotel, Brussels, Belgium.
- 295) Keynote speaker: For Macrotrends (<http://arnaarteconomics.com/dagvandetips2020/>) investor conference (<https://vimeo.com/653240070>) and talk entitled “Investor Presentation”
- 12th November 2021
 - Conference hosted by Marcotrends with 200 in person attendees, and 3-500 online attendees.
 - Ghent, Belgium
- 296) Invited Live TV interview: Benzinga (Spencer Israel show).

- a. TV interview on 7th Dec 2021 with youtube recording:
<https://www.youtube.com/watch?v=kS-7FVTNE2Y>
- b. Presentation can be found at: <https://www.youtube.com/watch?v=kS-7FVTNE2Y>
and the Spencer Israel show/background at <https://www.linkedin.com/in/spencer-israel-44b02b31/> and <https://www.benzinga.com/author/spencer-israel>
- 297) Invited Live TV interview: Benzinga (Spencer Israel show).
- a. TV interview on 11th Feb 2022 with youtube recording:
<https://www.youtube.com/watch?v=jFiB9P3voUk>
- b. Presentation can be found at: <https://www.youtube.com/watch?v=jFiB9P3voUk>
and the Spencer Israel show/background at <https://www.linkedin.com/in/spencer-israel-44b02b31/> and <https://www.benzinga.com/author/spencer-israel>
- 298) Invited Article and Interview entitled: “Q&A: Electro-optic polymers herald a new age of ultra-fast communication.” With Digital Journal (<https://www.digitaljournal.com>), and interviewer; Dr. Tim Sandle.
- a. Digital Journal interview and publication on 1st April 2022 in the Digital Journal.
- b. Article and interview can be found at: <https://www.digitaljournal.com/tech-science/qa-electro-optic-polymers-herald-a-new-age-of-ultra-fast-communication/article>
- 299) Invited Article entitled: “Electro-optic polymers allow faster, more efficient data transmission.” With Broadband Communities (<https://www.bbcmag.com>)
- a. Published in Broadband Communities 13th April 2022.
- b. Article can be found at:
https://www.bbcmag.com/pub/doc/BBC_Mar22_webFINAL.pdf