

Carl D. Meinhart

Birth: February 12, 1967, Effingham, Illinois

Nationality: USA

Academic Positions:

Professor, Department of Mechanical Engineering, University of California–Santa Barbara (2008-present)

Associate Professor, Department of Mechanical Engineering, University of California–Santa Barbara (2000-2008)

Assistant Professor, Department of Mechanical Engineering, University of California–Santa Barbara (1996-2000)

Industrial Positions:

Chief Executive Officer, Numerical Design, Inc., Santa Barbara, CA (2012-present)

Founder, Ti-MEMS, Inc., Santa Barbara, CA (2018 – Present)

Co-Founder, Pi-MEMS Inc., Santa Barbara, CA (2012 – 2016)

Chief Technology Officer, SpectraFluidics Inc. Santa Barbara, CA (2008 – 2011)

Research Scientist, Ford Motor Company, Dearborn, MI (1995 – 1996)

Education:

Ph.D. Theoretical and Applied Mechanics; University of Illinois at Urbana-Champaign, Urbana, Illinois, October 1994

Dissertation: *An investigation of turbulent boundary-layer structure using particle-image velocimetry.*

Advisor: Prof. Ronald J. Adrian

M.S. Theoretical and Applied Mechanics; University of Illinois at Urbana-Champaign, Urbana, Illinois, January 1991

B.S. Agricultural Engineering; University of Illinois at Urbana-Champaign, Urbana, Illinois, August 1989

Academic Honors:

- Invited Speaker, Bay Area Microfluidics Network, Zoom, May, 2020.
- Invited Speaker, SELECTBIO Conference, San Diego, CA, Sept. 2019.
- Invited Speaker, SELECTBIO Conference, Rotterdam, NL, June 2019.
- Invited Speaker, SELECTBIO Conference, San Diego, CA, Sept. 2018.
- Invited Speaker, NANOTECH 2018 Conference & Expo, Anaheim, CA, May 2018.
- Invited Speaker, SPIE Photonics West, BIOS, San Francisco, Jan. 2017
- Invited Speaker, SELECTBIO Conference, San Diego, CA, Sept. 2017.
- Keynote Speaker, The 12th International Symposium on Particle Image Velocimetry, Busan, Korea, June 2017.
- Keynote Speaker, COMSOL Users Conference, Newton, MA, Oct. 2016.
- Invited Speaker SELECTBIO Conference, San Diego, CA, Sept. 2016.
- Invited Speaker, Teledyne, Thousand Oaks, CA, June 2016.
- Invited Speaker, COMSOL Users Conference, Santa Clara, CA, April 2016.
- Invited Speaker, AIM Photonics Workshop, UC-Santa Barbara, Feb. 2016.
- Chairman, 11th International Symposium on Particle Image Velocimetry, Sept. 2015.
- Invited Speaker SELECTBIO Conference, San Diego, CA, Sept. 2015.
- Invited Speaker SELECTBIO Conference, San Diego, CA, Sept. 2014.
- Keynote Speaker ASME National Congress, San Diego, CA, Nov. 19, 2013.
- Invited Speaker, Gordon Conference: Microfluidics, Physics & Chemistry, St. Lucca, Italy, June 9 – 14, 2013.
- Fellow, APS, Nov. 2011.

- Invited speaker, International Symposium on Micro/Nano Flow Measurement Techniques – Horiba International Science Conference, Tokyo, Sept 20-22, 2010.
- Keynote Speaker, PIV'09, Melbourne, Australia, 2009
- Invited lecturer, CISM, Udine, Italy, 2008
- ASME Outstanding paper award, ASME Congress, Nov. 2007
- Outstanding Alumni Award, Lakeland College, 2007
- Invited speaker, DICP Symposium IX - Miniaturization of Analytical Instruments & micro-System, Dalian, China, 2006
- Invited speaker, 1st IEEE NEMS Conference, Zhuhai, China, 2006
- Keynote speaker, 1st COMSOL Multiphysics User Conference, Boston, MA, 2005
- Keynote speaker, 6th International Conference on Particle Image Velocimetry, Pasadena, CA, 2005
- Keynote speaker, 1st Workshop on Micro-Particle Image Velocimetry, Tech. Univ. of Delft, Netherlands, 2005
- Keynote speaker, International Symposium on Micro & NanoTechnology ISMNT, Honolulu, HI, 2004.
- Invited speaker, Advances in Biological Diagnostics and Medical Applications, San Jose, CA, 2003
- Invited speaker, *Nanomedicine Technology Conferenec*, Boston, MA, 2003
- Invited speaker, European Particle Velocimetry Workshop, Zaragoza, Spain, 2003
- Invited speaker, BioMEMS & Biomedical Nanotech World, Columbus, OH, 2002
- Keynote speaker, Seiken – Particle Image Velocimetry Workshop, Tokyo, Japan, 2002
- Keynote speaker, International Symposium for Flow Visualization, Kyoto, Japan, 2002
- NSF Career Award, 1999
- Who's Who in Science and Engineering, 1997, 1998
- NASA-ASEE Summer Faculty Fellowship, 1997
- C.E. Taylor Experimental Mechanics Award, 1993
- Bronze Tablet Award 1990, FMC Fellowship, 1990
- University of Illinois Educational Fellowship, 1989
- Tau Beta Pi, 1989
- Alpha Epsilon Honorary Society, 1989
- John Deere Scholarship, 1988
- ASAE Honored Member, 1988
- Outstanding Transfer Student Award, 1987

Expert Witness Experience:

- Nov. 2019 – Present, Expert Witness, MEMS-based Oscillators, Nov. 2019 – present.
- Oct. – Dec. 2019, Expert Witness, DNA Sequencing chip, IPR.
- Feb – Nov. 2010, Expert Witness, Deposition, Testimony, US District Court, San Diego, CA.
- Oct 2016 – Jan 2017, Expert Witness Medical Device, Deposition, Los Angeles, CA
- Mar – June 2016, Expert Witness, Ink Jet Printhead, Patent IPR, NY, NY.
- May - July 2015, Expert Witness DNA Sequencing, Deposition/Testimony, Menlo Park, CA.
- Sept. 2004 – Expert witness for patent infringement, **Invitrogen**, Carlsbad, CA.

Consulting Experience:

- August 2012 – Present, Founder, CEO, Numerical Design, Inc., Santa Barbara, CA.
- August 2012 – Present, co-founder, PiMEMS, Inc., Santa Barbara, CA.
- July 2007 – Dec. 2011, co-Founder, CTO, SpectraFluidics, Inc., Santa Barbara, CA.
- May 2007 – Aug 2008, Numerical simulation of steam transport for solar energy, **Ausra**, Palo Alto, CA.
- April 2004 – March 2007, Microfluidic design of immunoassay instrumentation, **Diagnostic Product Corporation**, El Segundo, CA
- Jan. 2006 – July 2006, Design & numerical simulation of a brain catheter, **Medtronics**, Santa Barbara, CA
- Sept. 2005 – March 2006, Numerical simulation of polymeric solutions for biomedical applications, **Mentor Corp.**, Santa Barbara, CA
- Jan. 2004 – May 2004, Flow visualization to improve gradient gel electrophoresis analysis for cholesterol diagnostics, **Berkeley Heart Lab**, Oakland, CA.
- August 2000 – March 2004, Design of immunodiagnostic instrumentation, **ThauMDx**, Santa Barbara, CA

- July 2003 – July 2005, Numerical simulation of heat transfer in turbo machinery, **Advanced Propulsion Technology**, Santa Barbara, CA
- Jan 2000 – present, Fluid diagnostic instrumentation development, **TSI Inc.**, St. Paul, MN

Work Experience:

- July 2008 – present, Professor, **University of California**, Santa Barbara, CA
- July 2000-June 2008, Associate Professor, **University of California**, Santa Barbara, CA
- July 1996-July 2000, Assistant Professor, **University of California**, Santa Barbara, CA
- June 1997-August 1997, Summer Faculty Fellow, **NASA Johnson Space Center**, Houston, TX
- July 1995-August 1996, Research Scientist, **Ford Motor Company**, Dearborn, MI
- August 1994-June 1995, Postdoctoral Research Associate, **University of Illinois**, Urbana, IL
- September 1994-October 1994, Visitor, Churchill College, **Cambridge University**, Cambridge CB 1130DS, UK
- January 1990-July 1994, Graduate Research Assistant, **University of Illinois**, Urbana, IL

Current Research Activities:

- Developing and using micro-resolution particle image velocimetry (PIV) for measuring velocity fields in micro-scale flows
- Developing ac electrokinetic-based techniques for enhancing immunoassays and stem cell culturing
- Ti-based thermal ground planes for cooling IC chips
- Developing free surface fluidics (FSF) and combining with SERS for trace chemical detection

Current Teaching Activities:

- Co-Developed a senior-level undergraduate / first year graduate class on numerical optimization.
- Co-Developed a senior-level undergraduate / first year graduate class on multiphysics simulation.
- Developed a sequence of graduate classes on transport phenomena that occur in macroscale and microscale flows.
- Taught graduate-level classes on turbulent flows
- Taught undergraduate fluid mechanics and thermodynamics classes

Reviewing and Refereeing Activity:

- Proceedings of the National Academy of Science
- Measurement Science Technology
- Physics of Fluids
- Journal of Fluid Mechanics
- Experiments in Fluids
- ASME Journal of Fluids Engineering
- ASME - IMECE'99, 00, 01, 02, 03, 04 MEMS Symposia (review committee)
- International Workshop on PIV 99, 01, 05.
- International Symposium of Flow Visualization
- IEEE Aerospace Conference
- NSF Proposals, including a Panel Review Committees

Editorship:

- Proceedings of the Third International Workshop on Particle Image Velocimetry, 1999.
- Member of editorial board Experiments in Fluids, 2004 - present

Conference Organization:

- Chair – Eleventh International Symposium on Particle Image Velocimetry, 2015
- Scientific Board – 13th International Symposium on the Application of Lasers to Fluid Mechanics 2006
- Organizing Committee – Sixth International Workshop on Particle Image Velocimetry, 2005.
- Secretary General - Third International Workshop on Particle Image Velocimetry, 1999

Professional Societies:

- American Physical Society
- American Society of Mechanical Engineers

University Service:

- Undergraduate Council, 2019-present.
- Graduate Council, 2016- 2019
- Faculty Legislature (University Wide), 2012-present
- Faculty Executive Committee (College), 2014 – 2016
- Merit and Promotion Committee (Department), 2012 – 2015
- Distinguished Alumni Committee Chairman (Department), 2014
- Undergraduate Advisor (Department), 2003 – 2004
- Graduate Admissions & Recruitment Committee (Department)
- Design & Computing Committee (Department)
- Liaison with Industrial Development Committee (Department)
- Undergraduate Curriculum Committee (Department)
- College of Engineering Executive Committee (College)
- Ad Hoc Committee for Biomolecular Engineering (College)
- Engineering Sciences Building Committee (College)
- Lead UCSB organizer of a proposal for an NSF Engineering Research Center on Bio-MEMS (College)

Graduate Students Advised:

• Dazhi Wang	Ph.D	2004
• Shannon Stone	Ph.D	2005
• Liu Xiaojun	Ph.D	2005
• Matt Pommer	Ph.D	2007
• Gaurav Soni	Ph.D	2008
• Marin Sigurdson	PhD	2008
• Brian Piorek	PhD	2008
• Hope Feldman	PhD	2009
• Chrysafis Andreou	PhD	2013
• Meysam Rezaei Barmi	PhD	2013
• Mehran Hoonejani	PhD	2015
• Yu-Wei Lui	PhD	2015
• Eric Terry	PhD	2017
• Alex Eden	PhD	2018
• Reza Salemmilani	PhD	2019
• Rustin Mirsafavi	PhD	2020
• Amir Tahmasebipour	PhD	2021 (Expected)
• Srikumar Sheshasayee	M.S.	1997
• Hong-Sheng Zhang	M.S.	1999
• Yang Lu	M.S.	2000
• Marion Volpert	M.S.	2000
• Lorraine Widmann	M.S.	2000
• Mike H. B. Gray	M.S.	2002
• Nari Soundarrajan	M.S.	2002
• Stephen Bradford	M.S.	2007
• Andy Kiel	M.S.	2007
• Nick Judy	MS	2015
• Alex Eden	M.S.	2016

Postdoctoral Students Advised:

- Steve Wereley 9/97 – 7/99
Current Position: Professor, Department of Mechanical Engineering, Purdue University
- Derek Tretheway 1/00 – 8/04

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| | Current Position: Professor, Department of Mechanical Engineering,
Portland State University |
| • Fredric Bottausci | 4/02 – 1/06 |
| • Marin Sigurdson | 5/08– 4/15
Current Position: Mechanical Engineering.
Innovative MicroTechnology (IMT), Santa Barbara, CA |
| • Nimisha Srivastava | 10/08 – 10/10
Current Position: Member of Technical Staff
Twist Bioscience, Bay Area |
| • Brian Piorek | 8/13 – present
Current Position: Postdoctoral Student
University of California – Santa Barbara |
| • Payam Bozorgi | 8/13 – 1/15
Current Position: CEO
PiMEMS, Inc. – Santa Barbara |

Staff Engineer Advised:

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| • Marin Sigurdson | 1/00 – 3/13 |
| • Nick Judy | 8/08 – 8/12, 8/15 - Present |
| • T.J. Reed | 6/08 - 3/11 |

Major Grants and Contracts:

- Surface Enhanced Raman Spectroscopy / Microfluidics for Trace Chemical Vapor Detection, \$100k, 1/19-12/19.
- Disposable Photonic for Biomedical Assays, AIM Photonics, \$170k, 1/19 – 12/20.
- Development of Universal Transducer Components for Integrated Photonics, AIM, \$150k, 1/18-12/18.
- Detection of Drugs and Explosives for Forensics, \$120k, 10/17-3/18.
- Development of Universal Transducer Components for Integrated Photonic, \$213k, 3/17-12/17.
- Fully-Integrated Raman Detector for Distributed Detection of Chemicals, \$500k, 1/16-3/17.
- Detection of Drugs and Explosives for Forensics Analysis, \$1350k, ECBC, 9/14-9/17.
- Biomelecular Analysis and Characterization in Nanofluidic Channels \$389k, 12/15-11/17 (coPI, w/ Sumita Pennathur)
- *C. elegans* embryos in temperature gradients, NIH, \$389k, 7/13 – 6/15 (co PI, w/ Joel Rothman)
- Nanofluidic technology for label-free bioanalytical studies, ARO, 12/12-11/15, \$600k (co-PI, w/ Pennethur).
- Microfluidic Raman strategy for rapid cellular identification and classification, ARO, 12/12-11/15, \$300k.
- Microfluidics/SERS for real-time detection of hazardous chemicals, ARO, 12/12-11/15, \$600k.
- Titanium MEMS for thermal ground planes, NSA, 8/12 – 8/13. \$300k.
- High-throughput screening, sorting and enrichment of oleaginous algae using microfluidics and single-cell Raman Spectroscopy, ARO, 12/11 – 11/12, \$100k.
- Interfacial Microfluidics/SERS for high sensitivity detection using aptamer-functionalized SERS active systems, ARO, 12/11 – 11/12, \$200k.
- High-throughput screening of oleaginous algae using microfluidics, Raman and Fourier transform infrared spectroscopy, ARO, 12/10 – 11/11, \$100k
- Digital free-surface microfluidics/SERS for high sensitivity detection of biological & chemical agents, ARO, 12/10 – 11/11, \$200k.
- Free-Surface Microfluidics/SERS for high sensitivity detection of biological and chemical agents, ARO, 12/09 – 11/10, \$200k.
- Detection of Airborne Explosives with Ultra-high Sensitivity and Specificity, ARO, 4/09 – 8/12, \$2100k.
- SERS Detection for Explosives Vapor, DARPA, 4/09 – 8/10, \$500k (PI)
- Ti-Based Thermal Ground Planes, DARPA, 4/08- present, \$1750k (PI)
- Development of a Portable DNA Sensor, ARO, 5/05 – 5/08, \$2,100,000 (co-PI)
- NIRT: Titanium-Based Biomolecular Manipulation Tools, NSF, 8/04 – 7/08, \$1,000,000 (PI)
- Surface-Fluid Interactions in Micro- and Nano-Scale Channels, AFOSR, 1/04 – 12/06, \$390,856 (PI)

- AC Electrokinetic Enhancement of Bio-Sensor Performance, ARO – Institute for Collaborative Biotechnology, 9/03 – 1/07, \$251,780 (PI)
- Super-hydrophobic Surfaces in Nanochannels, Los Alamos National Lab, 1/04 – 12/04, \$100,000 (co-PI)
- An Integrated Tunable Laser Cavity Sensor for Immunoassay Analysis and Molecular Diagnostics, DARPA, 7/00 – 6/04, \$1,500,000 (PI)
- ITR/ACS: Computational Infrastructure for Microfluidic Systems with Applications to Biotechnology, NSF, 9/00 – 8/04, \$2,900,000 (Co-PI)
- Experimental Analysis of Dielectrophoresis in Microchannels, DARPA / Stanford, 7/00 – 3/04, \$185,000 (PI)
- Equipment Grant for Micro Mixing, NSF, 10/99 – 9/01, \$105,000 (Co-PI)
- MEMCAD software donation, Microcosym, 9/99 – 9/00, \$70,000 (commercial value) (PI)
- Fluid Mechanics of Microscale Engineering Systems, NSF Career Award, 7/98 – 6/04, \$225,000 (PI)
- Optical Diagnostic Techniques for Micro-Mixing Devices, DARPA / UIUC, 7/98 – 6/01, \$191,807 (PI)
- Development of Micro-Resolution PIV and Analysis of Microthrusters for Small-Scale Aircraft and Spacecraft, AFOSR, 7/97 – 6/00, \$313,001 (PI)
- Velocimetry to Microfluidic Devices for Space Exploration, Jet Propulsion Laboratory, 1/98 – 12/99, \$63,000 (PI)

Minor Grants and Contracts:

- Microfluidics for Antibiotic Detection, 3M, 3/14-present, \$10,000
- Microfluidic Genetic Diagnostics, Tamarisc, 1/06 – 10/06, \$2,000
- Fluid Mechanics Research, Ford Motor Company, 9/96 - present, \$30,000
- Microfluidics Research, Seiko-Epson, 9/98 – present, \$4,300
- PIV Analysis of SEA-JET Nozzles, Seiko-Epson, 10/98 – 3/99, \$23,809
- Support for the Third International Workshop on PIV, NSF, 1/99 – 12/99, \$10,000
- Support for the Third International Workshop on PIV, NASA, 1/99 – 12/99, \$10,000
- Support for the Third International Workshop on PIV, ONR, 1/99 – 12/99, \$5,000
- Support for the Third International Workshop on PIV, Ford Motor Company, 1/99 – present, \$3,500
- Fluid Mechanics for Microscale Systems, Ford Motor Company, 9/99 – present, \$10,000

Invited Seminar Presentations:

- COMSOL Webinar, April 23, 2015.
- Lab on a Chip Microarrays, San Diego, CA, Sept. 19, 2014.
- Washington University, St Louis, MO, June 25, 2014.
- 3M, Inc., Minneapolis, MN, Aug. 22, 2013.
- 10th International Symposium on Particle Image Velocimetry, July 2, 2013.
- ASME Congress Keynote, San Diego, CA, Nov. 19, 2013.
- DARPA Insertion Conference, Adelphi, MD, Sept. 18, 2013.
- Cottage Hospital, Santa Barbara, CA, July 19, 2013.
- Gordon Conference: Microfluidics, Physics & Chemistry, June 9 – 14, 2013.
- Mechanical Engineering Seminar, UCSB, May 6, 2013.
- MLT Seminar Series, Massachusetts Institute of Technology, April 9, 2013.
- Invenios, Santa Barbara, CA, May 24, 2013.
- MF-4 Fourth Microfluidics Consortium, UCSB, Feb. 1, 2013.
- Mechanical Engineering Seminar, UCR, Riverside, CA, Jan. 24, 2013.
- Eastern Analytical Symposium, Somerset, NJ, Nov. 15, 2011.
- NNIN/C Michigan Symposium: Advanced Modeling and Simulation of NEMS/MEMS and Nano/Microfluidic Devices, Ann Arbor, MI, April 19 – 20, 2011.
- Raytheon, El Segundo, CA, Jan. 21, 2011.
- International Symposium on Micro/Nano Flow Measurement Techniques – Horiba International Science Conference, Tokyo, Sept 20-22, 2010.
- 8th International Conference on PIV, Melbourne, Australia, 2009
- Arizona State University, Tempe, AZ, 2008
- University of Padua, Padua, Italy, 2008
- International Centre for Mechanical Sciences (CISM), Udine, Italy, 2008
- ARL-SEDD, Adelphi, MD, 2008

- ECBC, Edgewood, MD, 2008
- CERDEC-NVESB, Belvoir, VA, 2008
- Technical University of Denmark, Copenhagen, Denmark, 2008
- Army Science Conference, ICB, Santa Barbara, CA, 2008
- California Institute of Technology, Pasadena, CA, 2007
- Agilent Technologies, Santa Clara, CA, 2007
- SRI, Menlo Park, CA, 2007
- Univ. of Penn, Philadelphia, PA, 2006
- Lisbon, Portugal, 2006
- DICP, Dalian, China, 2006
- Tsinghua University, China, 2006
- Chinese Institute of Non-linear Mechanics, Beijing, China, 2006
- 1st IEEE NEMS Conference, Zhuhai, China, 2006
- 1st Comsol Multiphysics Users Conference, Boston, MA, 2005
- Harvard University, Cambridge, MA, 2005.
- 6th International Conference on Particle Image Velocimetry, Pasadena, CA, 2005
- Wright Patterson Airforce Base, Dayton, OH, 2005.
- Center for Tribology Research, Inc., Campbell, CA, 2005.
- Technical University of Delft, The Netherlands, 2005.
- Stanford University, Stanford, CA, 2004
- University of Florida, Gainesville, FL, 2004
- Workshop for BioSensors, Army Research Office, Rayleigh, NC, 2004
- Adelphi Laboratory Center, US Army Research Laboratory, Adelphi, MD, 2004
- International Symposium on Micro and NanoTechnology ISMNT-1, Honolulu, HI, 2004
- Diagnostics Product Corporation, Los Angeles, CA, 2004
- Association of Laboratory Automation, San Jose, CA, 2004
- Department of Mechanical & Aerospace Engineering, UCLA, Westwood, CA, 2003
- Thermal Systems Incorporated, Bay Area, CA, 2003
- Microfluidics History, Theory and Applications, International Centre for Mechanical Sciences, Udine, Italy, 2003.
- National Institutes of Health, Rockville, MD, 2003
- American Society of Mechanical Engineers – Summer Meeting, Honolulu, HI, 2003.
- National Institute of Standards and Technology, Gaithersburg, MD, 2003
- Advances in Biological Diagnostics and Medical Applications, Knowledge Foundation, San Jose, CA, 2003
- AFOSR Workshop on Microfluidics, University of Southern California, Los Angeles, CA, 2003
- Nanomedicine Technology, Cambridge Healthtech Conference, Boston, MA, 2003
- Department of Mechanical Engineering, University of Ohio, Columbus, OH, 2003
- Euro PIV Workshop, Zaragoza, Spain, 2003
- California Nanosystems Institute, UCSB, Santa Barbara, CA, 2003
- Department of Aerospace Engineering, University of Minnesota, Minneapolis, MN, 2003
- American Institute of Aeronautics and Astronautics – Winter Meeting, Reno, ND, 2003
- DLR, Göttingen, Germany, 2002
- American Institute of Chemical Engineers, Indianapolis, IN, 2002
- SBCOMM – US ARMY, Aberdeen Proving Grounds, MD, 2002
- BioMEMS & Biomedical Nanotech World, Columbus, OH, 2002
- International Symposium on Flow Visualization, Kyoto, Japan, 2002
- SEIKEN PIV Workshop, Tokyo, Japan, 2002
- Seoul National University, Seoul, Korea, 2002
- Busan National University, Busan, Korea, 2002
- Kaist University, Daejeon, Korea, 2002
- LG Electronics, Seoul, Korea, 2002
- Dantec Short Course on PIV, Montreal, Canada, 2002
- TSI, Inc., Minneapolis, MN, 2002
- Technical University of Delft, Delft, The Netherlands, 2001

- M.D. Anderson Cancer Research Center, Houston, TX, 2001
- University of Michigan, Ann Arbor, MI, 2001.
- AIAA Aerospace Sciences Meeting, Reno, NV, 2001
- Purdue University, West Lafayette, IN, 2000.
- University of Houston, Houston, TX, 1999
- University of Illinois, Urbana, IL, 1999
- ASME / JSME Fluid Dynamics Meeting, San Francisco, CA, 1999
- DOD-Wide MEMS Meeting, Salt Lake City, UT, 1999
- AIAA Fluid Dynamics Conference, Norfolk, VA, 1999
- Small Talk 99 Conference, San Diego, CA, 1999
- Epson Corporation, Matsumoto, Japan, 1999
- University of California, Santa Barbara, 1999
- Bay Area MEMS Journal Club, Santa Clara, CA, 1999
- University of California, Santa Barbara, CA, 1999
- Stanford University, Stanford, CA, 1998
- Motorola Corporation, Tempe, AZ, 1998
- Epson Corporation, Matsumoto, Japan, 1998
- University of Southern California, Los Angeles, CA, 1998
- Lawrence Livermore National Laboratory, Livermore, CA, 1997
- Johnson Space Center - NASA, Houston, TX, 1997
- University of California, San Diego, CA, 1996
- The Aerospace Corporation, El Segundo, CA, 1996
- University of California, Santa Barbara, CA, 1996
- Ford Motor Company, Dearborn, MI, 1995
- University of Maryland, College Park, MD, 1994
- Stanford University, Palo Alto, CA, 1994
- Imperial College, London, UK, 1994
- DLR, Göttingen, Germany, 1994
- Delft University of Technology, Delft, The Netherlands, 1994
- The Technical University of Denmark, Charlottenlund, Denmark, 1994
- Illinois Institute of Technology, Chicago, IL, 1994
- University of Illinois, Urbana, IL, 1994
- Army Research Laboratory, Aberdeen, MA, 1994
- NASA Langley, Hampton, VA, 1993
- University of Illinois, Urbana, IL, 1992
- TSI, Inc., Minneapolis, MN, 1992

Patents:

- C. D. Meinhart**, J. G. Santiago, S. T. Wereley, and R. J. Adrian. Micron resolution particle image velocimeter, Patent No. 6,653,651 B1 Issued Nov. 25, 2003.
- C. D. Meinhart**, L. Coldren, & T. Stultz. Integrated Sensor. Patent No. 6,899,849, Issued May 31, 2005.
- C. D. Meinhart**, J. G. Santiago, S. T. Wereley, and R. J. Adrian. Depth-of-field micron resolution velocimetry with pulsed images of injected solid particles. Patent No. 7,057,198, June 6, 2006.
- C. D. Meinhart**, B. Piorek, S. J. Lee. M. Moskovits, Sanjoy Banerjee, J. G. Santiago. Device and methods of detection of airborne agents. Patent No. US 8,017,408 B2, Issued Sept. 13, 2011.
- C. D. Meinhart**, B. Piorek, S. J. Lee. M. Moskovits, Sanjoy Banerjee, J. G. Santiago. Device and methods of detection of airborne agents. Patent No. US 8,247,238 B2, Issued Aug. 21, 2012.
- C. D. Meinhart**, B. Piorek, S. J. Lee. M. Moskovits, Sanjoy Banerjee, J. G. Santiago. Device and methods of detection of airborne agents. Patent No. US 8,431,409 B2, Issued April 30, 2013.
- N.C. MacDonald, **C.D. Meinhart**, C. Ding, P. Bozorgi, G. Soni, B.D. Piorek. Titanium-based thermal ground plane. Patent No. 8807203. Issued Aug. 19, 2014.
- B. D. Piorek, **C.D. Meinhart**, S. J. Lee, SERS devices for the remote analysis of analytes. Patent No. 8917389. Issued Dec. 23, 2014.
- B. D. Piorek, **C.D. Meinhart**, S.J. Lee. Methods and apparatus for transport of airborne molecules using an active cyclical vapor/liquid exchange, Patent No. 8792095, Issued July 29, 2014.

- C. D. Meinhart**, B. Piorek, S. J. Lee, M. Moskovits, Sanjoy Banerjee, J. G. Santiago. Device and methods of detection of airborne agents. Patent No. US 9,097,676 B2, Issued Aug. 5, 2015.
- S. J. Lee, B.D. Piorek, **C.D. Meinhart**. Nano/micro-droplets for the detection of analytes. Patent No. 9036144, Issued May 19, 2015.
- C. D. Meinhart**, B. Piorek, S. J. Lee, M. Moskovits, Sanjoy Banerjee, J. G. Santiago. Device and methods of detection of airborne agents. Patent No. US 9,719,930 B2, Issued Aug. 1, 2017.
- N.C. MacDonald, **C.D. Meinhart**, C. Ding, P. Bozorgi, G. Soni, B.D. Piorek. Titanium-based thermal ground plane. Patent No. 10,309,728 B2. Issued June 4, 2019.
- P. Bozorgi and **C.D. Meinhart**. High Performance Two-Phase Cooling Apparatus. US Patent No. 10,458,719 B2, Oct. 29, 2019.
- C. D. Meinhart**, B. Piorek, N. Judy, Microfluidic-based Apparatus and Method for Vaporization of Liquids, US Patent No. 10,502,409 B2, Dec. 10, 2019.
- C. D. Meinhart**, B. Piorek, N. Judy, Microfluidic-based Apparatus and Method for Vaporization of Liquids, China (PRC) Patent No. ZL201580056901.5, Grant Dec. 18, 2019.
- C. D. Meinhart**, B. Piorek, N. Judy, Microfluidic-based Apparatus and Method for Vaporization of Liquids, US Patent No. 10,612,770, April. 7, 2020.

Archival Publications:

- Mirsafavi, R., Moskovits, M., Meinhart, C.D. Detection and classification of fentanyl and its precursors by surface-enhanced Raman spectroscopy, *Analyst*, 2020, 145, 3440, DOI: 10.1039/c9an02568e.
- Pintus, P. Hofbauer, M., Manganelli, C.L., Fournier, M., Gundavarapu, S., Lemonnier, O., Gambini, F., Adelmini, L., Meinhart, C.D., Kopp, C., Testa, F., Zimmermann, H., Oton, C.J. Pwm_Driven Thermally Tunable Silicon Microring Resonators: Design, Fabrication, and Characterization. *Laser Photonics, Rev.* 2019, 13, 1800275. DOI: 10.1002/lpor.201800275.
- Salemmilani, R., Moskovits, M., Meinhart, C.D. Microfluidic analysis of fentanyl-laced heroin samples by surface-enhanced Raman spectroscopy in hydrophobic medium. *Analyst*, 2019, 144, 3080, DOI: 10.1039/c9an00168a.
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