

## RAYMOND H FERNANDO

### I. EDUCATION

- 09/81 – 07/86 Ph.D. Degree (Polymers & Coatings), North Dakota State University, Fargo, ND  
Thesis: Influence of Dynamic Uniaxial Extensional Viscosities and Hydrophobically-Modified, Water-Soluble Polymers in Aqueous Systems.
- 09/75 – 08/79 BS Degree (Chemistry), University of Sri Jayewardenepura, Sri Lanka

### II. EMPLOYMENT

#### ACADEMIC EMPLOYMENT

- 07/02 – 02/17 Arthur C Edwards Endowed Chair; Professor, Department of Chemistry and Biochemistry; Director, Polymers and Coatings Program and Kenneth N Edwards Western Coatings Technology Center; California Polytechnic State University, San Luis Obispo, CA
- 06/97 – 06/03 Invited Lecturer - Annual Intensive Coatings Science Short Course, North Dakota State University, Fargo, ND
- 09/81 – 06/85 Graduate Teaching Assistant, Polymers and Coatings Department, North Dakota State University, Fargo, ND 58105
- 10/79 – 12/79 Assistant Lecturer, University of Sri Jayewardenepura, Nugegoda, Sri Lanka

#### INDUSTRIAL EMPLOYMENT

- 04/99 - 06/02 Lead Research Chemist, Corporate Science & Technology Center, Air Products and Chemicals, Inc., Allentown, PA  
Responsibilities: Lead project on hybrid nano-particle additives for industrial coating applications (Product concept successfully transferred to development group). Conduct research on formulation effects on rheology of coatings and adhesives. Run research program on spin coating process dynamics. Provide training and consultation on coating science and rheology
- 08/96 - 03/99 Principal Scientist / Program Manager, Coatings, Building Products Operations, Armstrong World Industries, Inc., Lancaster, PA  
Responsibilities: Manage coating research program to support the \$750 million-acoustical ceiling tile business. Develop new product / process concepts. Supervise & coordinate R&D activities of coating research group and new product /process implementation groups. Oversee funding for academic research. Train global organization in coating science & technology at various appropriate levels.
- 08/91 - 07/96 Senior Research Scientist, R&D, Armstrong World Industries, Inc., Lancaster, PA  
Responsibilities: Develop coating science & technology base to support new product & process implementation related to core businesses (i.e., resilient floor coverings, ceiling tiles, and rubber cots & aprons for textile machinery). Develop a comprehensive coating research program to support acoustical ceiling tile business. Supervise activities of three to five scientists and technicians.
- 08/89 - 07/91 Research Scientist, R&D, Armstrong World Industries, Inc., Lancaster, PA  
Responsibilities: Conduct research to support formulation and application aspects of coatings for resilient floor coverings and acoustical ceiling tiles.
- 08/86 - 07/89 Research Chemist, R&D, Armstrong World Industries, Inc., Lancaster, PA  
Responsibilities: Included establishing a state-of-the-art rheology laboratory.
- 01/80 - 08/81 Research Officer, Rubber Technology Division, Ceylon Institute for Scientific & Industrial Research, Colombo, Sri Lanka  
Responsibilities: Included conducting research on dynamic mechanical properties of cross-linked natural rubber compounds.

## PROFESSIONAL TRAINING

1. The Dale Carnegie Course (2001)
2. Basic Integrated Circuit Technology - *Integrated Circuit Engineering* (2001)
3. Value Analysis - Function Analysis, Brainstorming & Idea Screening Techniques - *J. Carter* (1998)
4. Project Risk Management and Decision Making - *Duncan & Nevison* (1997)
5. Technical Leadership - Managing and Motivating Today's Technical Professional - *Mohr Development, Inc.* (1991)
6. Project Management - *Manning Management Systems, Inc.* (1990)
7. Statistical Process Control Methods – *Armstrong World Industries* (1989)

## III. TEACHING RELATED ACTIVITIES

- Cal Poly fall quarter Polymer Physical Chemistry and Analysis Undergraduate and Graduate Lecture and Laboratory [2003-2015, 2018]
- Cal Poly spring quarter Coating Formulation Principles Undergraduate and Graduate Lecture and Laboratory [2003-2018]
- Cal Poly Undergraduate and Graduate Seminar Courses to prepare students for industrial and academic careers [2008-2018]
- Organize, run, and teach Cal Poly's winter and summer Polymers and Coatings Intensive Short Courses offered to Industry Professionals [2003-2018]

## UNDERGRADUATE STUDENT SENIOR PROJECTS (14)

*"Effects of Dispersion Stability and Time on Syneresis, Rheology, and Film Properties of Latex Paint Formulations"*, **James Casabar**, 2016

*"Examination of the Effects of Coalescing Aids on Latex films"*, **Christopher Gore**, 2014

*"Quantitative Analysis of Environmental Nutrients"*, **David Spohn**, 2014

*"The Use of Polymers in Hydraulic Fracturing: An Analysis of the Process, Drawbacks, and Benefits of Adapting Modern Polymers to Shale Gas Production"*, **Nikolai von Glasenapp**, 2014

*"Characterization of polymeric thickeners and surfactants"*, **Paul Materum**, 2013

*"Analysis of Silicone and Non-Silicone Type Defoamers"*, **Laural Hargrove**, 2011

*"Synthesis of an Antimicrobial Textile Coating"*, **Bill Morris**, 2011

*"Silicones: Overview and Applications"*, **Arlene Reyes**, 2010

*"Waterborne Nanocomposite Two-Component Epoxy Coatings"*, **Scott Sumner**, 2009

*"A Study of the Effect of Shear-Thinning behavior on the Performance of Latex Coatings and the Effect of Rheology Modifiers on the Rheology Profiles of Latexes"*, **Dina Alvarez-Pintor**, 2009

*"A New Approach to Understanding Polymer-Surfactant Interactions: Rheological Properties of Aqueous HEAT Solutions in the Presence of Triton X-45 and  $\beta$ -Cyclodextrin"*, **Sean Manion**, 2008

*"An Overview of the Structure, Function, and Applications of Shape Memory Polymers"*, **Justin Lucas**, 2007

*“The Effect of Nanoparticles on the Scratch Resistance of a Polyurethane Matrix”*, **Kyle Lundgren**, 2007

*“Shear-Induced One-Dimensional Alignment of Alumina and Silica Nanoparticles in Coatings”*, **Erik Sapper**, 2007

*“Optical Microscopy Imaging Systems”*, **Dan Yu**, 2007

MAIN ADVISOR FOR POLYMERS AND COATINGS MASTER’S DEGREE STUDENTS (41)

- Jose Figueroa (2019)
- Bishop Hammack (2019)
- Jeremy Armas (2018)
- Sophia Chau (2018)
- Arlen Prosser (2018)
- Ryan Cox (2017)
- Austin Levy (2017)
- Evan Scherzinger (2017)
- Kimberly Kha (2017)
- Richard Morrison (2016)
- Molly Burns (2016)
- Simone Feist (2016)
- Daisy Jauregui (2016)
- Brendan Nghiem (2016)
- Holly Keene (2016)
- Jake Thomas (2016)
- Dana Christensen (2015)
- Travis Smith (2015)
- Tyler Bell (2014)
- Eric Tsoi (2013)
- Franceska Santos (2013)
- Nathan Starkweather (2013)
- Maung Htet (2013)
- Laural Hargrove (2012)
- Doug Herrick (2012)
- Megan Hart (2011)
- Mallory McMahon (2011)
- Logan Stark (2011)
- Deborah Wang (2009)
- Matt Clarke (2008)
- Peter Krommenhoek (2008)
- Adam Paiz (2008)
- John Hauck (2007)
- Justin Lucas (2007)
- Lisa Kennedy (2007)
- Erik Sapper (2007)
- Trevor Squier (2007)
- Jonathan White (2007)
- Dan Yu (2007)
- Laura Johnson (2006)
- Lucas Brickweg (2006)
- Bruce Floryancic (2006)
- Jeffrey Comer (2006)
- Ryan Garcia (2005)
- Kristen Nolan (2004)

COMMITTEE MEMBER FOR POLYMERS AND COATINGS MASTER’S DEGREE STUDENTS (17)

- Raymond Thai (2018)
- Kelby Hull (2017)
- Erica Bilodeau (2016)
- Michaela Pfau (2016)
- Spencer Schultz (2016)
- Alexandra Stevenson (2015)
- Doug Amato (2013)
- Jeff Foster (2012)
- Kyle Bentz (2011)
- Richard Brose (2011)
- Phil Dirlam (2011)
- Greg Strange (2011)

- Grace Luo (2014)
- Haydn Mitchell (2014)
- Neil Redeker (2013)
- Cameron Wilson (2009)
- Eric Appel (2008)

#### IV. PROFESSIONAL DEVELOPMENT ACTIVITIES

##### Grants and Contracts

<b>NSF</b> <b>[2015-2018]</b>	<b>\$300,000</b> – Wet Printing of Carbon Nanotube-Enhanced Osmosis Membranes for Water Desalination. PI for this project is Dr. Shanju Zhang. My role as Co-PI is provide rheology and process expertise for the project team.
<b>Siegwerk Corporation</b> <b>[2016-2017]</b>	<b>\$85,000</b> - Development of a Novel Barrier Coating [Co-PIs: Dr. Ajay Kathuria (Industrial Technology) and Dr. Malcolm Keif (Graphic Communications)]
<b>Chenhong Company</b> <b>[2016]</b>	<b>\$14,500</b> – Formulating and testing low VOC alkyd enamel paints.
<b>Lake Regional Medical Company</b> <b>[2016]</b>	<b>\$3,540</b> - Thermal and rheological analysis of PTFE formulations
<b>LeChat</b> <b>[2015-2016]</b>	<b>\$25,000</b> – Novel, High-Performance, Nail Polish Compositions
<b>WM Keck Foundation</b> <b>[2013-2016]</b>	<b>\$250,000</b> - Exploring Emerging Waste Streams Created by Advances in Technology: Bringing Real World Issues into the Undergraduate STEM Curriculum at Cal Poly, San Luis Obispo. PI for this project is Dr. Jim Hanson (Civil and Environmental Engineering). My main contribution is in the area of nanomaterials and nano-waste.
<b>Performance Polymers</b> <b>[2014-2015]</b>	<b>\$75,000</b> – Synthesis, Characterization and Scale-Up of Proprietary Biodegradable Polyurethane Prepolymers.
<b>NSF</b> <b>[2013-2014]</b>	<b>\$100,000</b> - Vertically aligned bulk heterojunctions by combining screen printing and lyotropic liquid crystal processing. PI for this project is Dr. Shanju Zhang. My role as Co-PI is provide rheology and process expertise for the project team.
<b>Boeing</b> <b>[2011-2012]</b>	<b>\$75,000</b> – Development of a Quantitative Fluorescence Method for Measurement of Corrosion in Coated Aluminum. PI for this project is Dr. Chad Immoos. My role and Co-PI is to facilitate contacts with Boeing to secure funds and advising on coating related issues.
<b>Bunge Corporation</b> <b>[2011-2012]</b>	<b>\$20,000</b> – Preparation of aluminum phosphate materials containing various amounts of silver. PI for this project is Dr. Chad Immoos. My role is facilitating contacts with Boeing to secure funds and advising on coating related issues.
<b>Myriant Corporation</b> <b>[2011-2012]</b>	<b>\$14,700</b> – Evaluation of Succinic Acid Based Coalescing Aids in Architectural Coating Formulations
<b>California Air Resources Board</b> <b>[2010-2012]</b>	<b>\$100,000</b> – Low volatile organic compound (VOC) stain-blocking specialty primer coatings. Dr. Dane Jones is Co-Investigator of this project.

<b>CertainTeed Corporation [2010-2011]</b>	<b>\$75,000</b> - Improvement of coating adhesion and quantification of durability of coated polypropylene exterior cladding products: Project Proposed for Sponsorship by CertainTeed Corporation
<b>Tanner Research [2011]</b>	<b>\$4,400</b> – Prepare epoxy coated panels with embedded optical fibers for corrosion monitoring via IR spectroscopy
<b>iRhythm Corporation [2009-2010]</b>	<b>\$4,000</b> – Thermal property analysis of dermal adhesives for heart monitoring device
<b>NIST [2006-2007]</b>	<b>\$41,000</b> – Dispersion and stabilization of nanoparticles
<b>BYK Chemie Company [2006-2007]</b>	<b>\$100,000</b> - Understanding mechanisms of coating scratch resistance improvements by inorganic nanoparticles
<b>Boeing [2004-2007]</b>	<b>\$143,000</b> – Development of an aircraft fuel tank sealant detackifier coating.

#### CONSULTING

- Asian Paints Company (India)
- Bunge Corporation (USA)
- CertainTeed Company (USA)
- Chemrez Company (Philippines)
- Chenhong Company (China)
- Chemours Company (USA)
- Deck-Flex Company (USA)
- Hewlett-Packard Corporation (USA)
- IFCO Company (USA)
- iRhythm Company (USA)
- Jesons Industries (India)
- Jungbunzlauer Company (USA)
- Lake Regional Medical Company (USA)
- Malaysian Rubber Research Institute (Malaysia)
- Moldex Company (USA)
- Myriant Corporation (USA)
- PaintCare (USA)
- PPG/Comex Company (Mexico)
- Performance Polymers Company (USA)
- Rubbermaid Corporation (USA)
- Telekinetic Company (USA)
- TOA Paint Company (Thailand)

- USG Corporation (USA)
- Yolo Color Company (USA)

## PROFESSIONAL HONORS AND LEADERSHIP ACTIVITIES

### **Professional Affiliations:**

- 1982-Present Member - *American Chemical Society and Divisions of Polymeric Materials: Science & Engineering, and Polymer Chemistry*
- 1982-Present Member – *American Coatings Association (Formerly Federation of Societies for Coatings Technology)*
- 1983-Present Member - *Society of Rheology*
- 2014-Present Member – *Los Angeles Society for Coatings Technology (LASCT) Technical Program Committee*
- 2004-2007 Chair, *FSCT Technical Events Coordinating Committee*
- 1999-2006 Member, Chair - *FSCT Annual Meeting Technical Program Committee*
- 1995-2002 Industrial Advisory Board Member, Immediate Past Chair - *Polymers & Coatings Department, North Dakota State University*
- 1996-2000 Industrial Advisory Board Member - *Paper Surface Science Program, Dept. of Chemical Engineering, University of Maine*
- 1997-1999 Industrial Advisory Board Member - *National Science Foundation Industry/University Cooperative Research Center in Coating*

### **Awards and Honors Received:**

- 2018 American Coatings Association  
-*Joseph J Mattiello Lecture Award*
- 2017 Cal Poly, San Luis Obispo Provost's Award  
-*Partnership in Philanthropy*
- 2016 Plaque of Appreciation by Asian Paints Company  
-*Distinguish Speaker at Technology Day Celebration*
- 2008 Plaque of Appreciation by Philippine Association of Paint Manufacturers  
-*Nanotechnology training at Makati City, Philippines*
- 2005 FSCT President's Award  
-*Distinguished Service to Professionals in Coatings Field*
- 2004 FSCT Service Award  
- *Service as Chair of FSCT Annual Meeting Technical Program Committee*
- 2002 Distinguished Alumni Fellow Award, NDSU Polymers and Coatings Department  
- *Extraordinary Service to the Department*
- 2001 Management Team Award for Excellence  
- *Mentoring high school and college students, and new employees*
- 2001 Management Team Award for Excellence  
- *Successful completion and transfer of new product concept*
- 1998 Roon Foundation Award at International Coating Exposition  
- *Original Coating Research Contribution*
- 1997 General Manager's Team Award for Excellence  
- *Planning and implementation of state-of-the-art coating pilot line*
- 1995 Manager's Award for Excellence  
- *Extra effort in supporting new product development team*
- 1993 Manager's Award for Excellence  
- *Extra effort on training manufacturing scientists in coating technology*

- 1991 General Manager's Award for Excellence  
*- Development of ceiling tile coating to meet marketing requirements; successful product commercialization*
- 1990 Manager's Award for Excellence  
*- Contribution to solving protective coating problem in resilient floor coverings*

## V. SERVICE

### SERVICE TO THE UNIVERSITY

- Fund Raising**
- Played a key role in raising \$2.5 million to establish Cal Poly's Kenneth N Edwards Western Coatings Technology Center
  - Support Developing and Maintaining contacts with major donors in coordination with Cal Poly Advancement Personnel
  - Lead efforts to successfully raise \$1.1 million for expanding the Kenneth N Edwards Western Coatings Technology Center Facility

### SERVICE TO THE PROFESSIONAL COMMUNITY

- American Coatings Association (ACA) & Local Coating Societies**
- Organized and co-taught "Coatings 101: An Introduction" short course at CoatingsTech Conference, Cleveland, OH in 2017
  - Organized and co-taught "Introduction to Coatings Formulation" short course at Pacific North-West Society for Coating Technology Conference, Tulalip, WA in 2016
  - Taught "Science and Technology of Coatings Formulations" pre-conference short course at ACA CoatingsTech Meeting in Atlanta, GA in 2015
  - Member of Los Angeles Society for Coatings Technology Technical Program Committee
  - Organized the featured session "Science Today, Coatings Tomorrow" at the 2012 conference at (Indianapolis, IN); invited by ACA to moderate this session.
  - Rheology Control in Waterborne Coatings – Instructor to Waterborne Coatings: Overcoming Challenges to Performance Short Course, Coatings Tech Conference, Chicago, IL, 2011
  - Presented invited lecture to Cleveland Society for Coatings Technology on "Nanotechnology Applications in Coatings", 2009
  - Lectured as instructor for several other short courses organized by ACA at ACA Conferences during 2002-11 period.
  - Conducted web-based training events: Coating Rheology Parts I and II; Nanomaterial Applications in Coatings, organized by ACA.
  - Chaired several ACA national meeting conference sessions
- American Chemical Society (ACS)**
- Organize and ran a symposium on Nanomaterial Applications in Coatings held in San Francisco during Fall 2006 National Meeting
  - Edited and Published proceedings of the above symposium as an ACS Symposium Series Book with Co-Editor Dr. LiPiin Sung (NIST), 2008
- Other**
- Co-taught with Dr. Don Sundberg (EPCEd), "Rheology Fundamentals & Applications for Synthetic Latices and Associated Coatings Formulations" workshop: San Diego, CA, March 2012, Durham, NH, October 2012, San Diego, CA, September, 2014, Portland, OR, October, 2015, Las Vegas, NV, October 2017
  - External reviewer for tenure and promotion to full professor application by Dr. Brian Hinderliter at University of Minnesota Duluth Mechanical and Industrial Engineering Department, 2016

- External reviewer for promotion to full professor application by Dr. James Rawlins at the University of Southern Mississippi, 2017

**Journal  
Manuscript  
Reviewer**

- Journal of Coatings Technology and Research
- Progress in Organic Coatings
- Nordic Pulp and Paper Research Journal
- Journal of Rheology
- Journal of Chemical Education
- ACS Sustainable Chemistry & Engineering
- International Journal of Biological Macromolecules
- Member of Editorial Review Board for Journal of Coatings Technology and Research

**Refereed  
Papers**

*“Ordered Nanostructures of Carbon Nanotube–Polymer Composites from Lyotropic Liquid Crystal Templating”*, C. R. Kasprzak, E. T. Scherzinger, A. Sarkar, M. Miao, D. H. Porcincula, A. M. Madriz, Z. M. Pennewell, S. S. Chau, R. Fernando, M. Stefik, and S. Zhang. *Macromolecular Chemistry and Physics*, <https://doi.org/10.1002/macp.201800197> (2018)

*“Solution-Based Large-Area Assembly of Coaxial Inorganic–Organic Hybrid Nanowires for Fast Ambipolar Charge Transport”*, R. Cox, G. T. Olson, M. Pfau, N. Eshaghi, S. Khamishon, K. Barcus, D. Ramirez, R. Fernando, and S. Zhang, *ACS Applied Materials & Interfaces*, 9 (19), 16397-16403 (2017)

*“Syneresis and rheology mechanisms of a latex-HEUR associative thickener system”*, F. A. Santos, T. J. Bell, A. R. Stevenson, D. J. Christensen, M. R. Pfau, B. Q. Nghiem, C. R. Kasprzak, T. B. Smith, and R. H. Fernando, *Journal of Coatings Technology & Research*, 14(1), 57-67 (2017)

*“Self-tuning tests to examine coating failure pave the way for an automated future”*, E. Bilodeau, E. Sapper, K. Hull, C. Immoos, and R. Fernando, *European Coatings Journal*, 11, 40-47 (2016)

*“Dispersion Phase Diagrams for HEUR-Thickened Acrylic Paint Systems”*, Bell, T.J., Fernando, R.H., Ness, J., Street, C., and Korenkiewicz, *JCT CoatingsTech*, p32-39, February 2015

*“The effects of color concentrates on the rheology of tint bases”*, D. J. Herrick, J. W. Boke, M. Y. Htet, and R. H. Fernando *JCT CoatingsTech*, p34-40, September 2013.

*“Shear-thickening in aqueous surfactant-associative thickener mixtures”*, S. J. Manion, L. L. Johnson, and R. H. Fernando, *Journal of Coatings Technology & Research*, 8(3), 299-309 (2011)

*“Effect of TiO<sub>2</sub> pigment type on the UV degradation of filled coatings”*, D. L. Wang, S. S. Watson, L. Sung, I-H. Tseng, C. J. Bouis, and R. Fernando, *Journal of Coatings Technology & Research*, 8(1), 19-33 (2011)

*“Thermal Initiated Hydroxyethyl Methacrylate Functionalization of Multi-Walled Carbon Nanotubes.”* G.W. Curtzwiler, P.J. Costanzo, R. Fernando, K. Vorst, *Journal of Applied Polymer Science*, 121(2), 964-969 (2010)

*“Nanotechnology Applications in Coatings”*, ACS Symposium Series Book No. 1008 (Edited by R. H. Fernando & L. Sung), American Chemical Society (2009)

*“Nanocomposite and Nanostructured Coatings”*, R. H. Fernando, Chapter 1 in “Nanotechnology Applications in Coatings”, ACS Symposium Series No. 1008 (Edited by R. H. Fernando & L. Sung), American Chemical Society (2009)



*"Shear-Induced One-Dimensional Alignment of Alumina and Silica Nanoparticles in Coatings"*, E. Sapper, L. Brickweg, B. Floryancic, and R. H. Fernando, Chapter 7 in *"Nanotechnology Applications in Coatings"*, ACS Symposium Series No. 1008 (Edited by R. H. Fernando & L. Sung), American Chemical Society (2009)

*"Effects of Alumina and Silica Nanoparticles on Polyurethane Clear-Coating Properties"*, M. Clarke, A. Paiz, L. Brickweg, B. Floryancic, and R. H. Fernando, Chapter 11 in *"Nanotechnology Applications in Coatings"*, ACS Symposium Series No. 1008 (Edited by R. H. Fernando & L. Sung), American Chemical Society (2009)

*"Scratch Behavior of Nano-Alumina/Polyurethane Coatings"*, L. Sung, J. Comer, A. M. Forster, H. Hu, B. Floryancic, L. Brickweg, and R. H. Fernando, *J. Coatings Tech. Res.*, 5 (4), 419-430 (2008)

*"Development of a Performance and Environmental Certification System for Recycled Paint Products"*, D. Jones, H. Sanborn, S. Cassell, B. Addelstone, M. Petruzzi, D. Darling and R. Fernando, *JCT Coatings Tech*, February (2007)

*"Shear-induced 1-D Alignment of Alumina Nanoparticles in Coatings"*, L. J. Brickweg, B.R. Floryancic, E.D. Sapper, and R.H. Fernando. *J. Coat. Technol. Res.*, 4 (1), 107-110 (2007)

*"Nanomaterial Technology Applications in Coatings"*, R. Fernando, *JCT CoatingsTech*, 1(5), 32-38 (2004)

*"Effect of Hydrophilic Size on Structural Phases of Aqueous Nonionic Gemini Surfactant Solutions"*, M. Nieh, S. K. Kumar, R. H. Fernando, R. H. Colby, and J. Katsaras, *Langmuir*, 20, 9061-9068 (2004)

*"Rheology Parameters Controlling Spray Atomization and Roll Misting Behavior of Waterborne Coatings"*, R. H. Fernando, L. L. Xing, and J. E. Glass, *Progress in Organic Coatings*, 40(1-4), 35 (2000)

*"Parameters Influencing the Spray Behavior of Waterborne Coatings"*, L. L. Xing, J. E. Glass, and R. H. Fernando, *Journal of Coatings Technology*, 71(890), 37 (1999)

*"Spray Application of Water-Borne Coatings"*, L. L. Xing, J. E. Glass, and R. H. Fernando, ACS Symposium Series, No. 663, *Technology for Water-Borne Coatings*, Chapter 15 (1997)

*"Interactions of HEUR Associative Thickeners with Waterborne Polyurethanes"*, Kaczmariski, J. P., Fernando, R. H., and Glass, J. E., *Journal of Coatings Technology*, 65(818), 39 (1993)

Murakami, T., Fernando, RH, and Glass, JE, "The Influence of Hydrophobically-Modified, Alkali-Swellable Emulsions on the Rheology of Pigmented Coatings", *ibid.*, 76(1), 8-14 (1993)

*"Dynamic Uniaxial Extensional Viscosity (DUEV) Effects in Roll Application I. Rib and Web Growth in Commercial Coatings"*, D. A. Soules, R. H. Fernando, and J. E. Glass, *Journal of Rheology*, 32(2), 181 (1988)

*"Dynamic Uniaxial Extensional Viscosity (DUEV) Effects in Roll Application II. Polymer Blend Studies"*, R. H. Fernando and J. E. Glass, *Journal of Rheology*, 32(2), 199 (1988)

*"The Influence of Associative Thickeners on Coating Performance: Part IV. Formulation Surfactant Effects"*, T. Murakami, R. H. Fernando, and J. E. Glass, *J. Oil and Colour Chemists Association*, 71(10), 315 (1988)

*"The Influence of Associative Thickeners on Coating Performance: Part III. Variation of Percent Non-Volatile"*, R. H. Fernando, W. F. McDonald, and J. E. Glass, J. Oil and Colour Chemists Association, 69(8), 263 (1986)

*"Extensional Viscosity Correlation with Mobility Control Buffer Flow Behavior in Berea Cores"*, R. H. Fernando, J. E. Glass, and D. A. Burnett, SPE Publication No. 13584, Society of Petroleum Engineers, P.O. Box 83386, Richardson, Texas 75083 (1985)

*"The Influence of Associative Thickeners on Coating Performance: Part II. Heterodispersed, Hydroxyethyl Cellulose-Stabilized, Vinyl-Acrylic Latex Studies"*, R. H. Fernando, and J. E. Glass, J. Oil and Colour Chemists Association, 67(11), 279 (1984)

*"The Influence of Associative Thickeners on Coating Performance: Part I. Small-Particle, All Acrylic Latex Studies"*, J. E. Glass, R. H. Fernando, and S. K. Eglund-Jongewaard, and R. G. Brown, J. Oil and Colour Chemists Association, 67(10), 256 (1984)

*"Viscosity Stability of Aqueous Polysaccharide Solutions"*, J. E. Glass, D. A. Soules, H. Ahmed, S. K. Eglund-Jongewaard, and R. H. Fernando, SPE Publication No. 11691, Society of Petroleum Engineers, P.O. Box 83386, Richardson, Texas 75083 (1983)

**Patents** *"Shear-induced alignment of nanoparticles in coatings"*, R. H. Fernando, L.J. Brickweg, and B. R. Floryancic, US 8512810 (2013)

*"High Light Reflectance and Durable Ceiling Board Coating"*, K. G. Caldwell and R. H. Fernando, EP0928819, US6103360 (2000)

*"Coating System and Method of Applying the Same"*, K. G. Caldwell, R. H. Fernando, and V. K. Pidugu, EP1054046 (1999)

*"Phyllosilicate Containing Aminoplast Wear Layer for Resilient Surface Coverings"*, R. H. Fernando and W. J. Bohrn, US5124202 (1992)

**Other Publications/ Presentations** *"Rheological and colloidal aspects of latex-associative thickener formulations: Overcoming remaining challenges"*, Raymond H. Fernando, Joseph J. Mattiello Lecture, Presented at American Coatings Association Conference, Indianapolis, IN (April 2018)

*"Effects of Latex and Thickener Hydrophobicity on the Rheology and Stability of Aqueous Latex-HEUR Mixtures"* Travis B. Smith, David L. Chisholm, Gary W. Dombrowski, John J. Rabasco, Patrick E. Harnett, and Raymond H. Fernando, Presented at American Coatings Association Conference, Indianapolis, IN (April 2018)

*"Colloidal and Rheological Aspects of Stability of Latex Formulations"* Raymond H. Fernando, Gary W. Dombrowski, John J. Rabasco, Patrick E. Harnett, John P. Sharpe, Bradley J. Shaw, and Travis B. Smith, presented at Coatings Science International Conference, Amsterdam, Netherlands (June 2017)

*"Syneresis and rheology mechanisms of a latex-HEUR associative thickener system"*, Ray Fernando, Invited presentation at Dow Chemical Company, Collegeville, PA (2016)

*"Optimizing In-Can Latex Paint Stability: Interplay between Thermodynamics and Rheology"*, Ray Fernando, Invited presentation at Corporate Technology Conference, Asian Paint Company, Mumbai, India (2016)

*"A discussion of selected coating topics"*, Ray Fernando, Invited presentation at Chemours Company, Wilmington, DE (2016)

*"Colloidal and Rheological Aspects of Stability of Latex Paint Formulations"*, Ray Fernando, Invited presentation at Ashland Chemical Company, Wilmington, DE (2016)

*"Colloidal and Rheological Aspects of Stability of Latex Paint Formulations"*, Ray Fernando, Invited presentation at National Institute for Standards and Technology, Gaithersburg, MD (2016)

*"Meeting Challenges in Formulating Latex Paints with Associative Thickeners: Utility of Dispersion Phase Diagrams"*, Invited speaker for Pacific North-West and Golden Gate Societies for Coatings Technology Speaker Tour, San Jose, CA, Portland, WA, and Vancouver, BC (2016)

*"Control of Phase Behavior and Rheology of Latex-HEUR Mixtures"*, Ray Fernando, Presented at the Asia Pacific Coatings Conference, Kuala Lumpur, Malaysia (2015)

*"Control of Phase Behavior and Rheology of Latex-HEUR Mixtures with  $\beta$ -Cyclodextrin"*, Jake Thomas, Brendan Nghiem, Daisy Jauregui, and Ray Fernando, Presented at the Western Coatings Symposium, Las Vegas, NV (2015)

*"Phase Behavior and Rheology of Latex, Associative Thickener, Surfactant Mixtures"*, Franceska A. Santos, Tyler J Bell, Alexandra R Stevenson, Dana J Christensen, and Raymond H Fernando Presented at the American Coatings Association Conference, Atlanta, GA (2014)

*"Effects of Predispersed Colorants on Rheology of Waterborne Tint Bases"*, Doug Herrick, Maung Htet, Jason Boke, and Ray Fernando, Presented at the Western Coatings Symposium, Las Vegas, NV (2013)

*"Polymers and Coatings Education Cooperation Opportunities"* Ray Fernando, Invited presentation at China National Coatings Industry Association Conference, Shanghai, China (2013)

*"Performance of Stain Blocking Primer Coatings with Low Volatile Organic Compound (VOC) Content"*, Logan Stark, Megan Hart, Dahlia Ningrum, Dane Jones, and Ray Fernando, Presented at American Coatings Association Conference, Indianapolis, IN (2012)

*"Surface Chemistry Modification of Polymers via Plasma Treatment to Improve Coating Adhesion"*, Presented at International Conference on Chemical Sciences, Colombo, Sri Lanka (2012)

*"Shear-Thickening in Aqueous Surfactant-Associative Thickener Mixtures"*, Sean Manion, Laura Johnson, and Ray Fernando, Invited Presentation at Boeing-NIST joint meeting, Seattle, WA (2011)

*"Role of Polymers in Sustainable Development"*, Ray Fernando, Invited Presentation to Engineers Guild of Sri Lanka, Colombo, Sri Lanka (2011)

*"Rheology Modifiers for Waterborne Coatings"*, Ray Fernando, Invited Presentation at Lubrizol Corporation, Cleveland, OH (2011)

*"Shear-Thickening in Aqueous Surfactant-Associative Thickener Mixtures"*, Sean Manion, Laura Johnson, and Ray Fernando, PACIFICHEM Conference, Honolulu, HI (2010)

*"Inorganic Nanomaterial Applications in Scratch Resistant Organic Coatings"*, R. H. Fernando, Invited Paper Presented at PMSE Tess Award Symposium, ACS Fall Meeting, Boston, MA (2010)

*“Recent Advancements in Nanotechnology Coatings”*, R. H. Fernando, Invited Lecture Presented at Sri Lanka Paint Manufacturers Association Meeting, Colombo, Sri Lanka (2010)

*“Nanotechnology concepts and applications of nanomaterials”*, R. H. Fernando, Invited Lecture Presented at Uwa-Wellassa University, Badulla, Sri Lanka (2010)

*“Shear-Thickening in Aqueous Surfactant-Associative Thickener Mixtures”*, R. H. Fernando, Presented at Asia Pacific Coatings Conference, Jakarta, Indonesia (2010)

*“Shear-Thickening in Aqueous Surfactant-Associative Thickener Mixtures”*, S. Manion, L. Johnson, and R. H. Fernando, Presented at American Coatings Association Conference, Charlotte, NC (2010)

*“Shear-Induced Thickening in Aqueous Surfactant-Associative Thickener Mixtures”*, Invited Presentation to Cleveland Society for Coatings Technology, Akron, OH (2010)

*“Nanotechnology Applications in Coatings”*, Invited Presentation to Arizona Society for Coatings Technology, Phoenix, AZ (2010)

*“Nanotechnology Applications in Coatings”*, Invited Presentation to Los Angeles Society for Coatings Technology, Buena Park, CA (2010)

*“Shear-Induced Thickening in Aqueous Surfactant-Associative Thickener Mixtures”*, Sean Manion, Diana Vuong, and Ray Fernando, Western Coatings Symposium, Las Vegas, NV (2009)

*“Effect of Pigment Type on the UV Degradation of Nanocomposite Coatings”*, Deborah Wang and Raymond Fernando, California Polytechnic State University; Stephanie Watson, Lipin Sung, and Peter Krommenhoek, National Institute of Standards and Technology; and Craig Bouis, Purdue University, CoatingsTech Conference, Indianapolis, IN (2009)

*“Effects of Degree of Curing and Nanoparticle Reinforcements on Scratch Behavior of Two-Component Polyurethane Coatings”*, Matt Clarke, Adam Paiz, Cameron Wilson, Kyle Lundgren, and Ray Fernando, Invited Paper Presented at PMSE Tess Award Symposium, ACS Fall Meeting, Washington, DC (2009)

*“Cure Condition Effects on Scratch Healing Behavior in Polyurethane Coatings”*, Matt Clarke, Adam Paiz, and Ray Fernando, Poster presented at American Coating Conference, Charlotte, NC (2008)

*“Correlations between Scratch Resistance behavior and Thermo-Mechanical Properties of Automotive Polyurethane Nano-Composite Coatings”*, Adam Paiz, Cameron Wilson, Matte Clarke, and Ray Fernando, Presented at American Coating Conference, Charlotte, NC (2008)

*“Self-Healing and Reinforcement Effects on Scratch Resistance of Nanocomposite Polyurethane Coatings”*, Matte Clarke, Adam Paiz, Cameron Wilson, and Ray Fernando, Presented at FSCT Future Coat Conference, Chicago, IL (2008)

*“Thermal and Mechanical Properties of Nano-Composite Clear Coatings”*, Matte Clarke, Jonathan White, Cameron Wilson and Ray Fernando, Western Coatings Symposium, Las Vegas, NV (2007)

*“Scratch Recovery and Self-Healing Behavior of Nanocomposite Polyurethane Clear Coatings”*, Dan Yu, Bryce R. Floryancic, Lucas J. Brickweg, and Raymond H Fernando, Western Coatings Symposium, Las Vegas, NV (2007)

*“Shear-Induced Thickening of Aqueous Surfactant-Associative Thickener Mixtures”*, Adam Paiz, Laura Johnson, and Ray Fernando, Western Coatings Symposium, Las Vegas, NV (2007)

*"Nanotechnology Applications in Coatings"*, R. H. Fernando, Invited paper presented at the ABRAFATI Coating Conference, Sao Paulo, Brazil (2007)

*"Nanotechnology Applications in Coatings"*, R. H. Fernando, Invited paper presented at the SCANZ Coating Conference, Rotorua, New Zealand (2007)

*"Nanotechnology Applications in Coatings"*, R. H. Fernando, Invited paper presented at the REPORT Coating Conference, Buenos Aires, Argentina (2006)

*"Effects of Rheology Modifiers on a Semi-Gloss Architectural Coating"*, Laura Johnson and Ray Fernando, Presented at the Golden Gate Society for Coatings Technology Meeting, San Francisco, CA (2005)

*"Utility of Aqueous Polymer Blends in Determining Importance of Extensional Flows in Roll and Other Coating Applications"*, R. H. Fernando, Invited Paper Presented at PMSE Tess Award Symposium, ACS Fall Meeting, Washington, DC (2005)

*"Effects of Alumina Nanoparticles on Automotive Clear Coats"*, Lucas Brickweg, Bryce Floryancic, and Ray Fernando, Presented at the FSCT Symposium on Nanotechnology in Coatings: Realizing the Potential, Seattle, WA (2005)

*"Interactions of Surfactants with HEAT and HEUR Associative Thickeners"*, R. H. Fernando, Invited Presentation, Proceedings of Asia Pacific Coating Conference, Singapore (2005)

*"Interactions of Surfactants with HEAT and HEUR Associative Thickeners"*, Ryan Garcia, Anita Wongosari, Lucas Brickweg, Megan Dietz, Gary Deng, and Ray Fernando, Proceedings of FSCT Annual Meeting Technical Program, Philadelphia, PA (2004)

*"Nanomaterial Applications in Coatings"*, R. H. Fernando, Invited Presentation at Detroit Society for Coatings Technology FOCUS Conference, Detroit, MI (2004)

*"Nanoparticle Applications in coatings"*, R. H. Fernando, Invited Presentation, Proceedings of Asia Pacific Coating Conference, Bangkok, Thailand (2004)

*"Determination of Polymeric Surfactant/Surfactant Interactions via Rheological Methods"*, Ryan Garcia, Anita Wongosari, and Ray Fernando, ACS Spring National Meeting, Anaheim, CA (2004)

*"Associative Thickener – Surfactant Interactions"*, Ryan Garcia, Jeff Liao, and Ray Fernando, Poster Presented at International Coatings Exposition, Philadelphia, PA (2003)

*"Nano-Particle Applications in Coatings"*, R. H. Fernando, Presented at LASCT PIC Conference, Buena Park, CA, and Golden Gate and Pacific Northwest Coating Society Monthly Meetings in San Francisco, CA, Portland, OR, Seattle, WA, and Vancouver, BC (2003)

*"Rheological Performance of Associative Thickeners and Cellulose Ethers in Architectural Coatings"*, R. H. Fernando, Presented at Asia Pacific Coatings Conference, Kuala Lumpur, Malaysia (2003)

*"Impact of Coating Formulation Variables on Rheological Performance of Associative Thickeners"*, R. H. Fernando, Presented at Western Coatings Symposium, Reno, NV (2003)

*"Effects of Latex Particle Stabilizing Package on Rheological Responses of Waterborne Coatings Containing Associative Thickeners"*, R. H. Fernando, R. R. Rieth, J. B. Chelius, T. L. Wickmann, and G. M. Lichner, Proceedings of the Water-Borne, Higher-Solids & Powder Coatings Symposium, 28, 33(2001)

*"Rheological Behavior of Vinyl Acetate/Ethylene Copolymer Latex Coating Formulations Containing Associative Thickeners"*, R. H. Fernando, T. L. Wickmann, M. Louie, and J. B. Chelius, Proceedings of the Annual Meeting Technical Program of the FSCT, 78, 623 (2000)

*"Rheology Parameters Controlling Spray Atomization and Roll Misting Behavior of Waterborne Coatings"*, R. H. Fernando, Presented at the International Conference in Organic Coatings, Athens, Greece (1999)

*"Parameters Influencing the Spray Behavior of Waterborne Coatings"*, L.-L. Xing, J. E. Glass, and R. H. Fernando, International Coating Exposition and Technical Conference, Presentation at Roon Award Competition (1998)

*"Impact of Formulation Ingredients on Finish Appearance of Coatings"*, R. H. Fernando, Presented at Tong-Ji University, Shanghai, China (1998)

*"Spray Applications of Low-VOC and Zero-VOC Coatings"*, L. L. Xing, R. H. Fernando, and J. E. Glass, Proceedings of the ACS Division of Polymeric Materials: Science and Engineering, 76, 29 (1997)

*"Particle Size Distribution Effects on Water-Borne Dispersion Coating Performance"*, R. H. Fernando, Proceedings of the Water-Borne, Higher-Solids & Powder Coatings Symposium, 19, 75 (1992)

*"Viscoelastic Behavior in Paper Coating Formulations Containing Associative Thickeners"*, D. J. Lundberg, K. Alahapperuma, R. H. Fernando, and J. E. Glass, TAPPI Coating Conference Proceedings, 479 (1990)

*"Hydrophobically-Modified, Alkali-Swellable Emulsion (HASE) Thickeners"*, R. H. Fernando, T. Murakami and J. E. Glass, Proceedings of the ACS Division of Polymeric Materials: Science and Engineering, 61, 409 (1989)

*"Size Ratio and Other Factors Affecting the Rheology of Latex/Titanium Dioxide Slurries Thickened with Hydrophobically-Modified, Water-Soluble Polymers"*, R. H. Fernando, and J. E. Glass, Proceedings of the ACS Division of Polymeric Materials: Science and Engineering, 56, 629 (1987)

*"Applications of and Complexities in Elongational Flow of Water-Soluble Polymers"*, D. A. Soules, R. H. Fernando, and J. E. Glass, Proceedings of the ACS Division of Polymeric Materials: Science and Engineering, 57, 118 (1987)

*"The Extensional Flow Behavior of Hydrolyzed (30%) Acrylamide / Carbohydrate Polymer Blends"*, R. H. Fernando and J. E. Glass, Proceedings of the ACS Division of Polymeric Materials: Science & Engineering, 51, 461 (1985)

*"The Influence of Binder Characteristics on Rheology of Water-Borne Coatings Containing Hydrophobically-Modified, Water-Soluble Polymers"*, T. Murakami, R. H. Fernando, and J. E. Glass, Proceedings of the ACS Division of Polymeric Materials: Science and Engineering, 53, 540 (1985)

*"The Influence of Percent Non-Volatiles by Volume on Rheology of Waterborne Coatings Containing Hydrophobically-Modified, Water-Soluble Polymers"*, R. H. Fernando, W. F. McDonald and J. E. Glass, Proceedings of the ACS Division of Polymeric Materials: Science and Engineering, 53, 545 (1985)

*"Mechanical Stability of Water-Soluble, Carbohydrate Polymers"*, D. A. Soules, R. H. Fernando, and J. E. Glass, Proceedings of the ACS Division of Polymeric Materials: Science and Engineering, 53, 555 (1985)

*"The Comparative Influence of Shear and Extensional Viscosities on Rib Number and Misting in Roll and Spray Application of Aqueous Polymer Blends and Industrial Coating Formulations"*, R. H. Fernando and J. E. Glass, Proceedings of the Water-Borne and Higher-Solids Coatings Symposium, New Orleans, Louisiana (1984)

#### STUDENT INVOLVEMENT IN PRESENTING RESEARCH

*"Film Formation Studies of Reactive Latexes"*, Jeremy Armas, Miguel Arambul, Travis Smith, and Ray Fernando, Poster presented at the Western Coatings Technology Symposium, Las Vegas, NV (2017)

*"Film Formation Studies of Reactive Latexes"*, Miguel Arambul, Travis Smith, and Ray Fernando, Poster presented at the American Coatings Association CoatingsTech Conference, Cleveland, OH (2017).

*"The History and Evolution of Volatile Organic Compound (VOC) Regulation in the United States"*, Molly E Burns, Dane Jones, and Ray Fernando, Poster presented at the American Coatings Association Conference, Indianapolis, IN (2016)

*"Effects of Dispersion Stability on Syneresis, Rheology, and Film Properties of Latex Paint Formulations"*, James Casabar and Ray Fernando, Poster presented at the American Coatings Association Conference, Indianapolis, IN (2016)

*"Surfactant effects on phase behavior and rheology of fully-formulated latex paints"*, Daisy Jauregui, Holly Keene, and Ray Fernando, Poster presented at the Western Coatings Technology Symposium, Las Vegas, NV (2015)

*"Syneresis and rheology mechanisms of a latex-HEUR associative thickener system"*, Travis Smith, Daisy Jauregui, Holly Keene, and Ray Fernando, Poster presented at the Western Coatings Technology Symposium, Las Vegas, NV (2015)

*"A Comparison of Phase behavior and Rheology between an All-Acrylic and a Vinyl-Acrylic Latex in the Presence of a HEUR Thickener"*, Dana J Christensen, Alexandra R Stevenson, and Raymond H Fernando, Poster presented at the American Coatings Association Conference, Atlanta, GA (2014)

*"Phase Behavior and Rheology of Latex, Associative Thickener, Surfactant Mixtures"*, Franceska Santos, Alexandra Stevenson, and Ray Fernando, Poster presented at the Western Coatings Technology Symposium, Las Vegas, NV (2013) [Winner of the First Place Best Poster Award]

*"Viscosity Behavior of aqueous mixtures of a hydrophobically-modified hydroxyethyl cellulose associative thickener and a non-ionic surfactant"*, Laural Hargrove and Ray Fernando, Poster Presentation at Western Coatings Show and Symposium, Las Vegas, NV (2011)

*"Performance of Stain Blocking Primer Coatings with Low Volatile Organic Compound (VOC) Content"*, Logan Stark, Megan Hart, Dahlia Ningrum, Dane Jones, and Ray Fernando, Oral Presentation at Western Coatings Show and Symposium, Las Vegas, NV (2011)

*"Corona Treatment of Polypropylene to improve coating adhesion"*, Logan Stark, Megan Hart, Ray Fernando, Poster Presentation at American Coatings Association Coatings Tech Conference, Chicago, IL 2011

*“Corona Treatment of Polypropylene to improve coating adhesion”*, Logan Stark, Megan Hart, Ray Fernando, Poster Presentation at COSAM Research Conference, 2011

*“Effects of cyclodextrin on rheology of aqueous surfactant-polymeric surfactant mixtures”*, Diana Vuong, Sean Manion, and Ray Fernando, COSAM Research Conference, 2009

*“Scratch resistance of a nanoparticle reinforced, solvent-based polyurethane coating”*, Kyle Lundgren, Chris Webster, and Ray Fernando, COSAM Research Conference, 2009

*“Nano-clay reinforced, waterborne epoxy and polyurethane coatings as alternatives to high VOC solvent-based coatings”*, Scott Sumner, Laural Hargrove, and Ray Fernando, COSAM Research Conference, 2009

*“Cure Condition Effects on Scratch Healing Behavior in Polyurethane Coatings”*, Matt Clarke, Adam Paiz, and Ray Fernando, Poster Presentation at the American Coatings Association Conference, 2008

*“Rheological behavior of HEAT type associative thickeners”*, Gary Deng, Laura Johnson, and Ray Fernando, COSAM Research Conference, 2007

*“Effects of Alumina and Silica Nanoparticles on Automotive Clear-Coat Properties”*, Lucas Brickweg, Bryce Floryancic, and Ray Fernando, Oral Presentation at the International Coatings Expo and Conference, New Orleans, LA, 2006

*“DMA Analysis of Nanocomposite Clear Coatings”*, Margarita Gonzales and Ray Fernando, Poster Presentation at the International Coatings Expo and Conference, New Orleans, LA, 2006

*“Effects of Plasticizers on Scratch Recovery Behavior of Automotive Clear Coats”*, Bryce Floryancic, Lucas Brickweg, Dan Yu, and Ray Fernando, Poster Presentation at the International Coatings Expo and Conference, New Orleans, LA, 2006

*“Characterization of One-Dimensional Nanoparticle Arrangements in Coatings”*, Erik Sapper, Lucas Brickweg, Bryce Floryancic, Susan Heisig, and Ray Fernando, Poster Presentation at the International Coatings Expo and Conference, New Orleans, LA, 2006