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Education

1992	Ph.D., Chemistry	Stanford University Advisor: Richard Zare
1987	B.S., Chemical Engineering	University of California, Berkeley Summa cum laude

Professional and Academic Appointments

2016 – present	Senior Associate Dean for Faculty and Academic Affairs, School of Engineering, Stanford University
2015 – 2016	Department Chair, Chemical Engineering, Stanford University
2013 – present	Bert and Candace Forbes University Fellow in Undergraduate Education
2012 – present	Jagdeep and Roshni Singh Professor in the School of Engineering
2005 – present	Professor of Chemical Engineering, Stanford University
2005 – present	Professor of Chemistry, by courtesy, Stanford University
2005 – present	Professor of Materials Science and Engineering, by courtesy, Stanford
2005 – present	Professor of Electrical Engineering, by courtesy, Stanford University
2010 – present	Director, TomKat Center for Sustainable Energy
2009 – present	Senior Fellow, Precourt Institute for Energy
2009 – 2015	Co-Director, Center on Nanostructuring for Efficient Energy Conversion (CNEEC), a DOE Energy Frontier Research Center
2006	Sabbatical Visitor, Physics Dept, Chalmers University, Gothenburg, Sweden
2005 – 2006	Associate Chair, Department of Chemical Engineering, Stanford University
2005 – 2007	Associate Professor, by courtesy, of Ophthalmology, Stanford University
2002 – 2005	Associate Professor of Chemical Engineering, Stanford University
1998 – 2002	Assistant Professor of Chemical Engineering, Stanford University, CA
1994 – 1998	Assistant Professor of Chemistry, New York University
1992 – 1993	Postdoctoral Research Associate, AT&T Bell Laboratories, Murray Hill, NJ
1987, 1989	Fellowship research at AT&T Bell Laboratories, Murray Hill, NJ
1987 – 1992	Graduate Research, Stanford University with Prof. Richard N. Zare
1984 – 1987	Undergraduate Research Assistant, UC, Berkeley, CA with Prof. Y. T. Lee

Awards and Honors

2017	Morino Lecturer, Japan
2016	Reilly Lectureship, University of Notre Dame
2013	Bert and Candace Forbes University Fellow in Undergraduate Education
2013	Fellow of the American Chemical Society (ACS)
2013	Allan V. Cox Medal for Faculty Excellence Fostering Undergraduate Research
2012	Jagdeep and Roshni Singh Endowed Professorship

2011	Fellow of the World Technology Network
2006	Fellow of the AVS
2006	Tau Beta Pi Award for Excellence in Undergraduate Teaching
2004	H. Willard Davis Lecturer, University of South Carolina
2001	Coblentz Award for Molecular Spectroscopy, Coblentz Society
2000	Peter Mark Memorial Award of the American Vacuum Society
1998-2001	Frederick E. Terman Faculty Fellow, Stanford University
1998-2003	Camille Dreyfus Teacher-Scholar Award
1998	Research Corporation Cottrell Scholar
1997-2000	Beckman Young Investigator Award
1995-2000	National Science Foundation CAREER Award
1990-1991	Evelyn McBain Graduate Fellowship
1987-1990	National Science Foundation Predoctoral Fellowship
1987-1992	AT&T Graduate Research Program for Women, Grant
1987	Phi Beta Kappa
1987	University Certificate of Distinction
1987	The Departmental Citation in Chemical Engineering
1987	E.O. Saegebarth Prize for Promise in Chemistry

Teaching Activities

Stanford University:

Kinetics and Reactor Design, ChE 170 (UG)

Chemical Engineering Laboratory, ChE 185A (UG)

Applied Spectroscopy, ChE 345 (Grad)

Microelectronics Processing Technology, ChE 140 (UG)

Structure and Reactivity of Solid Surfaces, ChE 442 (Grad)

How Computer Chips Are Made (Sophomore College UG course)

Energy Technologies for a Sustainable Future (Sophomore College UG course)

Energy: Chemical Transformations for Production, Storage and Use, ChE 25E (UG)

New York University:

Physical Chemistry II (Quantum Mechanics / Spectroscopy) (UG)

Experimental Methods Laboratory (UG)

Energy and the Environment (UG)

Professional Activities

2017 – present Editorial Advisory Board member, *Langmuir*

2016 – present External Advisory Board, UCSB Chemical Engineering Department

2016 – present Editorial Advisory Board member, *Surface Science*

2015 – present Member of the International Advisory Board, MAPEX Center for Materials and Processes, University of Bremen, Germany

2015 – present Member of the Scientific Advisory Board, French Technological Research Institute (IRT) Saint Exupery for aeronautics, space and embedded systems

2014 – 2016	Associate Editor, Chemistry of Materials
2014 – present	Program Committee, Energy Frontiers Focus Topical Session for 62nd AVS Meeting, 2015
2013 – 2014	Editor, Surface Science Reports
2013	Visiting Committee, Department of Chemical and Biomolecular Engineering, UCLA
2013 – 2014	Organizing Committee, Symposium on Selective Deposition and Etch for AVS 61 st Annual International Conference, 2014
2012 – present	Chair and Vice Chair of the Energy Subdivision of the Physical Chemistry Division, American Chemical Society
2012 – 2013	Organizing Committee, International Workshop on Nanotechnology for Next Generation High Efficiency Photovoltaics
2011 – 2012	Member of the ACS Presidential Commission on Graduate Education in the Chemical Sciences, American Chemical Society
2011 – 2013	Director, Materials Engineering and Sciences Division, American Institute of Chemical Engineering (AIChE)
2010 – present	Director, TomKat Center for Sustainable Energy
2009 – 2015	Co-Director, Center on Nanostructuring for Efficient Energy Conversion (CNEEC)
2009 – present	Senior Fellow, Precourt Institute for Energy
2009 – present	Affiliated Faculty Member, Woods Institute for the Environment
2008 – 2014	Editorial Board Member, <i>Annual Review of Chemical and Biomolecular Engineering</i>
2004 – 2014	Member of ACS Executive Director's 2020 Committee
2010	Co-Chair, Workshop on Grid Integration of Renewable Energy
2010	Chair of the Trustees, AVS
2009	Chair, Gordon Research Conference on Chemical Reactions at Surfaces
2008	International Advisory Committee, 25 th European Conference on Surface Science (ECOSS), Liverpool, UK
2007 – 2010	Trustee of the AVS (American Vacuum Society)
2007	Vice-Chair, Gordon Research Conference on Chemical Reactions at Surfaces
2007 – 2009	International Advisory and Programme Committee, International Conference on the Formation of Semiconductor Interfaces (ICFSI)
2007	International Advising Committee, Fourth San Luis Conference on Surfaces, Interfaces and Catalysis, Cuernavaca, Mexico
2006 – 2012	Symposium Organizer, Electrochemical Society Symposium on Atomic Layer Deposition Applications
2004	International Organizing Committee, International Conference on Cat-CVD Process, Denver Colorado 2002, The Netherlands
2004	Member, Local Organizing Committee, Physical Electronics Conference, Davis, CA
2004	Co-organizer, Symposium on Nanoscience and Bionanoscience, Sponsored by the Northern California Chapter of the AVS, Stanford, CA
2004	Co-organizer, INMP Workshop on Mobility and Interface Issues in High k Dielectrics
2002–2003	Division Chair, Surface Science Division, American Vacuum Society (AVS)

2001–2006	Advisory Editorial Board member, <i>Surface Science</i>
2001–2002	Program Chair, American Vacuum Society (AVS) Surface Science Division
2001	Program Committee Member, International Vacuum Congress (IVC)-15 Symposium, San Francisco
2001	Session Organizer and Chair, "Reaction Kinetics in Electronic Materials Processes," Annual Meeting of the American Institute of Chemical Engineers, Reno
2000–2006	Continuing Symposium Chair, "Molecular Processes at Solid Surfaces," American Chemical Society, Division of Colloid and Surface Chemistry
2000	Session Organizer and Chair, "Semiconductor Surface Chemistry," Annual Meeting of the American Institute of Chemical Engineers, Los Angeles
1998–2003	Member of the Executive Committee, Surface Science Division of the American Vacuum Society
Ongoing	External reviewer for the National Science Foundation, Research Corporation, Petroleum Research Fund, Beckman Foundation, Department of Energy, Air Force Office of Scientific Research, Journal of the American Chemical Society, Journal of Chemical Physics, Journal of Physical Chemistry, Journal of Vacuum Science and Technology, Langmuir, Surface Science, Journal of Applied Physics, Applied Physics Letters, Chemistry of Materials, Journal of Materials Chemistry, Journal of Crystal Growth, Chemical Communications, Advanced Materials, Advanced Functional Materials, Advanced Energy Materials, Catalysis Letters, Energy and Environmental Science, Thin Solid Films, Chemical Reviews, Nature Nanotechnology, Nature Chemistry, Nature Materials, Nano Letters, Angewandte Chemie, ACS Catalysis, ACS Nano, ACS Applied Materials and Interfaces, Science

Professional Memberships

1987 - present	American Chemical Society
1994 - present	Materials Research Society
1997 - present	American Vacuum Society
1998 - present	American Institute of Chemical Engineers
2009 - present	Electrochemical Society

University and Departmental Service

2016	Faculty Senate Steering Committee
2016	Stanford University Faculty Senate
2015	School of Engineering Executive Committee
2015	Member of the Undergraduate Research Advisory Panel (URAP), Office of the Vice Provost for Undergraduate Education (VPUE)
2015	Mentor, Leland Scholars summer bridge program (LSP)
2014 – present	Faculty Resource Advisor, Diversifying Academia, Recruiting Excellence (DARE) program
2013 – 2014	Search Committee for Dean of the School of Engineering
2013 – 2014	Associate Lab Director (ALD) Search Committee, SLAC
2011 – present	Advisory Board, Stanford Energy Club
2011 – present	Chair, Undergraduate Curriculum Committee, Dept of Chemical Engineering
2010 – present	Steering Committee, Connecting the Dots Program

2003 – present	Faculty Committee, Global Climate and Energy Program (GCEP)
2011 – 2012	Faculty Search Committee, Department of Chemical Engineering
2010 – 2011	Faculty Search Committee, Precourt Institute for Energy (PIE)
2009 – 2010	Stanford University Committee on Committees
2009	Planning Committee, Uncommon Dialogue on Large Scale Solar Systems
2009 – 2011	Safety Representative for Stauffer III Building, Department of Chemical Engineering
2008 – 2011	Chair, Graduate Admission Committee, Department of Chemical Engineering
2008 – 2009	Faculty Search Committee, Department of Bioengineering
2007 – 2011	Stanford University Faculty Senate
2007 – 2008	Faculty Search Committee, Department of Materials Science and Engineering
2006 – 2007	Departmental Colloquium Committee, Chair
2006 – 2007	Faculty Search Committee, Departments of Electrical Engineering and Bioengineering
2006	Energy Science and Technology Strategic Planning Committee, School of Engineering
2005 – 2006	SEQ2 Building Committee Member
2005 – 2006	Graduate Curriculum Review Committee, Department of Chemical Engineering
2004 – 2005	Chair, Faculty Search Committee, Department of Chemical Engineering
2004 – 2005	Faculty Search Committee, Department of Mechanical Engineering
2004 – 2005	Commission on Graduate Education
2003 – 2004	1 st Year Ph.D. Advisor, Department of Chemical Engineering
2002 – 2006	Subcommittee on Academic Standards
2002 – 2003	Chair, Faculty Search Committee, Department of Chemical Engineering
2001 – 2004	Chemical Engineering Department ABET Committee
2001 – 2004	Safety Representative, Department of Chemical Engineering
2001 – 2004	Graduate Student Action Committee, Dept of Chemical Engineering
2000 – 2003	Undergraduate Curriculum Committee, Department of Chemical Engineering
2000 – 2001	Faculty Advisory Committee for X-Ray Photoelectron Spectrometer (XPS)
2000 – 2001	Faculty Search Committee, Department of Chemical Engineering
1998 – 1999	Graduate Curriculum Committee, Department of Chemical Engineering

Doctoral and Masters Students Supervised

1. Maynard Kong Moreno (PhD 1998) Thesis Title: Studies of the Adsorption and Reactivity of a Series of Hydrocarbons on Si(100); Present Position: Professor, Catholic University of Peru, Lima, Peru.
2. Moon-Sook Lee (PhD 1999) Thesis Title: Chemical Reactivity in the Growth and Processing of Hydrogenated SiC Materials by Chemical Vapor Deposition; Present Position: Samsung Semiconductor R&D Center, Korea.
3. George T. Wang (PhD 2002) Thesis Title: Reactivity of Group IV (100) Semiconductor Surfaces towards Organic Compounds; Present Position: Senior Member of Technical Staff, Sandia National Laboratories, Albuquerque, NM.
4. Collin Mui (PhD 2002) Thesis Title: Growth and Functionalization of Electronic Materials; Present Position: Process Development Engineer, Gridtential Energy.
5. HaiLan Duan (PhD 2003) Thesis Title: Study of Hot Wire Chemical Vapor Deposition of Amorphous Hydrogenated Silicon Using Optical Diagnostics; Present Position: BEI Technologies, Automotive Division.
6. Gillian Zaharias (PhD 2005) Thesis Title: Hot Wire Chemical Vapor Deposition of Inorganic and Organic Thin Films for Solar Cells; Present Position: Staff Center, Ecology Center.
7. Christina Lee (PhD 2005) Thesis Title: Engineering Human Tissue for Control of Cellular Adhesion and Function for an Eventual Retinal Implant; Present Position: Senior Scientist, Life Technologies.
8. Michael Filler (PhD 2005) Thesis Title: Organic Functionalization of the Ge(100)-2x1 Semiconductor Interface: Reaction Chemistry, Selective Attachment Strategies, and Molecular Layer Deposition; Present Position: Associate Professor, Georgia Institute of Technology.
9. Junsic Hong (PhD 2005) Thesis Title: Vapor Phase Deposition of Self-Assembled Monolayers as a Resist Towards Area-Selective Atomic Layer Deposition; Present Position: IBM.
10. Rong Chen (PhD 2006) Thesis Title: Surface Modification for Area Selective Atomic Layer Deposition on Silicon and Germanium; Present Position: Professor, Huazhong University of Science and Technology.
11. Andre Worsley (PhD 2006) Thesis Title: Study of Key Integration Challenges for Low- κ Materials in Integrated Circuit (IC) Fabrication; Present Position: Lawrence Livermore National Laboratory.
12. Sandeep Giri (MS 2006) Thesis Title: Spatially Distributed, Size Controlled Growth of Nanoparticles by Atomic Layer Deposition; Present Position: Manager, Google [X].
13. David Porter (MS 2006) Thesis Title: Chemical and Electronic Properties of the Interface during Atomic Layer Deposition; Present Position: Lam Research.
14. Neville Mehenti (PhD 2007) Thesis Title: Novel Interfaces for Biomimetic Retinal Prostheses; Present Position: Associate Consultant, LEK Consulting.
15. Xirong Jiang (PhD 2009) Thesis Title: Study of Catalysis for Solid Oxide Fuel Cells and Direct Methanol Fuel Cells; Present Position: Head of Marketing Analytics, Gwynnie Bee.
16. Sang Wook Park (MS 2010) Masters research: Development of Manganese Oxide as Catalyst Using Atomic Layer Deposition; Present Position: Samsung.

17. Paul Loscutoff (PhD 2010) Thesis Title: Growth of Organic Films on Semiconductor Surfaces: Fundamental Reactivity Studies and Molecular Layer Deposition Involving Isocyanates and Isothiocyanates; Present Position: SunPower.
18. Jessica Kachian (PhD 2010) Thesis Title: Passivation, Periodic Trends, and Selective Attachment in Organic Functionalization of Ge(100)-2x1; Present Position: Applied Materials.
19. Pendar Ardalani (PhD 2010) Thesis Title: Organic and Inorganic Surface Modification of Semiconductors for Electronic and Energy Conversion Devices; Present Position: Lam Research.
20. Jonathan Bakke (PhD 2011) Thesis Title: Atomic Layer Deposition of Materials for Applications to Photovoltaics; Present Position: Applied Materials.
21. Marja Mullings (PhD 2013) Thesis Title: Exploring Spatial and Compositional Control of Conductive Materials in Atomic Layer Deposition; Present Position: 3M.
22. Thomas Brennan (PhD 2013) Thesis Title: Interface Engineering and Characterization in Dye- and Quantum Dot-Sensitized Solar Cells; Present Position: McKinsey & Company.
23. Rungthiwa Methaapanon (PhD 2013) Thesis Title: Mechanistic Studies of Titanium Dioxide and Ruthenium Atomic Layer Deposition by In Situ Techniques; Present Position: Engineer, Lam Research Corporation.
24. Han Zhou (PhD 2013) Thesis Title: Molecular Layer Deposition of Polymeric Thin Films for Applications in Semiconductor Fabrication; Present Position: Boston Consulting Group.
25. Keith Wong (PhD 2013) Thesis Title: Organic Functionalization of Ge(100)-2x1: Periodic Trends, Dative Bonding, New Functional Groups, and Multifunctional Molecules; Present Position: Applied Materials.
26. Richard Johnson (MS 2014) Masters research: Nucleation and growth mechanisms in ALD; Present Position: Materials Engineer, Arcanum Alloys.
27. Artit Wangperawong (PhD 2014) Thesis Title: Study of New Materials, Device Structures, and Characterization Techniques for Photovoltaics; Present Position: 4Catalyzer.
28. Bonggeun Shong (PhD 2014) Thesis Title: Lateral Interactions in Organic Functionalization of Semiconductor Surfaces; Present Position: Assistant Professor, Chungnam National University, Korea.
29. Katie Pickrahn (PhD 2015) Thesis Title: Atomic Layer Deposition of Earth Abundant Electrocatalysts for the Oxygen Evolution Reaction; Present Position: Lam Research.
30. Steven Herron (PhD 2015) Thesis Title: Solution Deposition of Semiconductor Thin Films for Photovoltaics; Present Position: MD student at UC San Francisco.
31. Katie Roelofs (PhD 2015) Thesis Title: Interface Engineering in Inorganic-Absorber Nanostructured Solar Cells; Present Position: Dupont.
32. Fatemeh Hashemi (PhD 2016) Thesis Topic: Area Selective Atomic Layer Deposition of Metal Oxides on Metal-Dielectric Patterns; Present Position: Postdoc at Delft University
33. Yesheng Yee (PhD 2016) Thesis Title: The Role of Crystallographic Defects in Semiconductors for Optoelectronic Applications; (jointly advised with Clemens); Present Position: Postdoc, Stanford University

34. Nuoya Yang (01/12 – present) Thesis Topic: Effects of Surface Structure, Promoters and Supports in Rh Catalysts for Higher Oxygenate Synthesis from Syngas; (Ph.D. student in Materials Science and Engineering)
35. Axel Palmstrom (04/13 – present) Thesis Topic: Nanostructured solar cells; (Ph.D. student in Chemical Engineering)
36. David Bergsman (04/13 – present) Thesis Topic: Mechanisms of molecular layer deposition; (Ph.D. student in Chemical Engineering)
37. Tania Sandoval (04/13 – present) Thesis Topic: Organic functionalization of Ge surfaces; (Ph.D. student in Chemical Engineering)
38. Richard Closser (05/14 – present) Thesis Topic: Molecular layer deposition; (Ph.D. student in Chemistry)
39. Callisto MacIsaac (05/14 – present) Thesis Topic: Nucleation and growth mechanisms in ALD; (Ph.D. student in Chemistry)
40. Joseph Singh (09/14 – present) Thesis Topic: Syngas conversion to higher alcohols with bimetallic catalysts; (Ph.D. student in Chemistry)
41. Jon Baker (04/15 – present) Thesis Topic: Atomic layer deposition of electrocatalysts; (Ph.D. student in Chemical Engineering)
42. Dara Bobb-Semple (04/15 – present) Thesis Topic: New methods for area selective ALD; (Ph.D. student in Chemical Engineering)
43. Joel Schneider (04/16 – present) Thesis Topic: Mechanistic studies of ternary metal oxide ALD; (Ph.D. student in Chemical Engineering)
44. Arun Asundi (04/16 – present) Thesis Topic: Promoted supported metal catalysts for syngas conversion; (Ph.D. student in Chemical Engineering)

Postdoctoral Scholars Supervised

1. Szetsen Steven Lee, 1994 – 1996; Present Position: Professor, Chung Yuan Univ, Taiwan.
2. Andrew Teplaykov, 1996 – 1998; Present Position: Professor, University of Delaware.
3. Ilya Chizhov, 2000; Present Position: Software engineer.
4. Jeffrey King, 2006 – 2008; Present Position: Senior Research Scientist, Corning Incorporated.
5. Jon Servaites, 2011 – 2012; Present Position: Founder, eLucid Technology.
6. Han-Bo-Ram Lee, 2010 – 2013; Present Position: Assistant Professor, Incheon University.
7. Scott Geyer, 2011– 2013; Present Position: Assistant Professor, Wake Forest University.
8. Jukka Tanskanen, 2009 – 2010, 2012 – 2013; Present Position: The Academy of Finland.
9. Carl Häggglund, 2010 – 2013; Present Position: Associate Senior Lecturer, Uppsala University, Sweden.
10. Chaiya Prasittichai, 2012 – 2014; Present Position: Lecturer, Kasetsart University, Thailand.
11. Sam Fleischman, 2012 – 2014; Present Position: Research Scientist, SynFuels China.
12. Adam Hultqvist, 2013 – 2015; Present Position: Researcher, Uppsala University, Sweden.

13. Pralay Santra, 2013 – 2015; Present Position: Scientist, Centre for Nano and Soft Matter Sciences, Bengaluru India.
14. Woo-Hee Kim, 2014 – 2016; Present Position: Micron Technology
15. Adrie Mackus, 2014 – 2016; Present Position: Assistant Professor, Eindhoven University, Netherlands.
16. Mie Lillethorup, 2015 – present
17. Uk Sim, 2016 – present

Undergraduate Students Supervised

Mikhail Velikanov (9/94 - 5/95); Julia Lyubovitsky (6/95 - 5/97); Shawn Gibb (6/96 - 5/97); Jaymin Jagmohan (1/97 - 5/97); Michael Guo-Jie Wu (6/97 - 8/97); Yetunde Noah (6/97 - 5/98); Pratik Lal (6/97 - 5/98); Florence Laine (7/97 - 5/98); Sunay Shaw (1/98 - 5/98); Mike Manzo (5/00 - 7/00, student from Berkeley); John Tannaci (9/00 - 6/02); Ryan Timmons (1/01 - 6/01); Jim Van Deventer (6/02 - 6/04); Aqueelah McKinley (6/02 - 6/03); Helen Shi (1/03 - 6/04); Greg Tsien (6/03 - 12/03); Jimmy Lu (9/03 - 6/05); Albert Keung (1/04 - 6/06); Nathan Marchak (1/05 - 6/07); Leslie Liang (1/05 - 6/06); Allen Huang (1/05 - 12/05); Ben Tran (4/06 - 12/08); Michael Heath (4/06 - 6/08); Kristin Squires (6/06 - 6/09); Kristine Pangan-Okimoto (4/08 - 6/09); Amita Seshadri (1/09 - 8/10); Sonali Chopra (4/09 - 6/10); Paul Chen (4/10 - 3/11); William Tarpeh (9/10 - 12/11); Juan Dominguez (9/10 - 6/12); Thomas Joseph (6/11 - 9/11); Weikang Sun (6/11 - 6/12); Aaron Garg (1/11 - 6/13); Peter Wang (6/12 - present); Qudus Lawal (1/13 - 12/13); Troy Yang (4/13 - 6/14); Mikhail Grant (6/13 - 12/13); Allison Crow (1/14 - 6/16); Takero Sone (6/14 - 6/16); Pan Chuen (3/15 - 9/15); Bradlee Birchansky (6/15 - 9/15); China Kantner (4/16 - present)

Research Publications (Citations: Web of Science h=43; average cites per paper=30)

1. "The electronic state-selective photodissociation of CH₂BrI at 248, 210, and 193 nm," L. J. Butler, E. J. Hintsa, S. F. Shane (Bent), and Y. T. Lee, *J. Chem. Phys.* **86** (1987) 2051.
2. "Ultraviolet photodissociation and thermochemistry of CH₂BrCH₂I, CF₂BrCF₂I and CF₂ICF₂I," G. M. Nathanson, T. K. Minton, S. F. Shane (Bent), and Y. T. Lee, *J. Chem. Phys.* **90** (1989) 6157.
3. "Rotational population and alignment distributions for inelastic scattering and trapping/desorption of NO on Pt(111)," D. C. Jacobs, K. W. Kolasinski, S. F. Shane (Bent), and R. N. Zare, *J. Chem. Phys.* **91** (1989) 3182.
4. "Surface vibrational energy relaxation by coupling to electron-hole pairs: c(2x2)-CO/Cu(100)," S. F. Shane (Bent), L. Rothberg, L. H. Dubois, N. J. Levinos, M. Morin, and A. L. Harris, Proceedings of the VIIth Topical Meeting on Ultrafast Phenomena, (Springer, New York, 1990).
5. "Vibrational energy transfer to metal surfaces probed by sum generation: CO/Cu(100) and CH₃S/Ag(111)," A. L. Harris, N. J. Levinos, L. Rothberg, L. H. Dhar, S. F. Shane (Bent), and M. Morin, *J. Electron Spectrosc. Related Phenom.* **54/55** (1990) 5.
6. "Probing the dynamics of hydrogen recombination on Si(100)," K. W. Kolasinski, S. F. Shane (Bent), and R. N. Zare, *J. Chem. Phys.* **95** (1991) 5482.

7. "Internal-state distributions of recombinative hydrogen desorption from Si(100)," K. W. Kolasinski, S. F. Shane (Bent), and R. N. Zare, *J. Chem. Phys.* **96** (1992) 3995.
8. "A state-specific study of hydrogen desorption from Si(100)-(2x1): comparison of disilane and hydrogen adsorption," S. F. Shane (Bent), K. W. Kolasinski, and R. N. Zare, *J. Vac. Sci. Technol. A* **10** (1992) 2287.
9. "Recombinative desorption of H₂ on Si(100)-(2x1) and Si(111)-(7x7): comparison of internal state distributions," S. F. Shane (Bent), K. W. Kolasinski, and R. N. Zare, *J. Chem. Phys.* **97** (1992) 1520.
10. "Internal-state distributions of H₂ desorbed from mono- and dihydride species on Si(100)," S. F. Shane (Bent), K. W. Kolasinski, and R. N. Zare, *J. Chem. Phys.* **97** (1992) 3704.
11. "Control of polarity and supramolecular optical effects in rigid surface assemblies," H. E. Katz, M. L. Schilling, S. B. Ungashe, S. Shane (Bent), G. Scheller, and W. L. Wilson, *Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.)* **34** (1993) 793.
12. "Structural studies of zirconium alkylphosphonate monolayers and multilayer assemblies," M. L. Schilling, H. E. Katz, S. M. Stein, S. F. Shane (Bent), W. L. Wilson, S. B. Ungashe, G. N. Taylor, T. M. Putvinski, and C. E. D. Chidsey, *Langmuir* **9** (1993) 2156.
13. "Structural characterization of self-assembled multilayers by FTIR," S. F. Bent, M. L. Schilling, W. L. Wilson, H. E. Katz and A. L. Harris, *Chem. Mater.* **6** (1994) 122.
14. "Synthesis, layer assembly, and fluorescence dynamics of poly(phenylene vinylene) oligomer phosphonates," H. E. Katz, S. F. Shane (Bent), W. L. Wilson, M. L. Schilling, and S. B. Ungashe, *Mater. Res. Soc. Symp. Proc.* **328** (1994) 361.
15. "Synthesis, layer assembly, and fluorescence dynamics of poly(phenylene vinylene) oligomer phosphonates," H. E. Katz, S. F. Bent, W. L. Wilson, M. L. Schilling, and S. Ungashe, *J. Am. Chem. Soc.* **116** (1994) 6631.
16. "Photoluminescence studies of self-assembled phenylene vinylene oligomer films," S. F. Shane (Bent), W. L. Wilson, H. E. Katz, M. L. Schilling, and S. Ungashe, *Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.)* **35** (1994) 315.
17. "Hydrogen recombinative desorption dynamics," S. F. Bent, H. A. Michelsen, and R. N. Zare, Laser Spectroscopy and Photochemistry on Metal Surfaces, H.-L. Dai and W. Ho, Eds. (World Scientific, New Jersey, 1995).
18. "Infrared study of reactions of atomic deuterium with amorphous silicon monohydride," S. S. Lee, M. J. Kong, S. F. Bent, C.-M. Chiang, and S. M. Gates, *J. Phys. Chem.* **100** (1996) 20015.
19. "Infrared spectroscopy of methyl groups on silicon," M. J. Kong, S. S. Lee, J. G. Lyubovitsky, and S. F. Bent, *Chem. Phys. Lett.* **263** (1996) 1.
20. "Bonding and thermal reactivity in thin a-SiC:H films grown by methylsilane CVD," M.-S. Lee and S. F. Bent, *J. Phys. Chem. B* **101** (1997) 9195.

21. "Vibrational spectroscopic studies of Diels-Alder reactions with the Si(100)-2x1 surface as a dienophile," A. V. Teplyakov, M. J. Kong, and S. F. Bent, *J. Amer. Chem. Soc.*, **119** (1997) 11098.
22. "Etching, insertion, and abstraction reactions of atomic deuterium with amorphous silicon hydride films," C.-M. Chiang, S. M. Gates, S. S. Lee, M. J. Kong, and S. F. Bent, *J. Phys. Chem. B* **101** (1997) 9537.
23. "Diels-Alder reactions of butadienes with the Si(100)-2x1 surface as a dienophile: vibrational spectroscopy, thermal desorption and near edge X-ray absorption fine structure studies," A. V. Teplyakov, M. J. Kong, and S. F. Bent, *J. Chem. Phys.*, **108** (1998) 4599.
24. "Spectroscopic and thermal studies of a-SiC:H film growth: comparison of mono-, tri-, and tetramethylsilane," M.-S. Lee and S. F. Bent, *J. Vac. Sci. Technol. A* **16** (1998) 1658.
25. "Evidence for a retro-Diels-Alder reaction on a single crystal surface: butadienes on Ge(100)," A. V. Teplyakov, P. Lal, Y. A. Noah, and S. F. Bent, *J. Am. Chem. Soc.*, **120** (1998) 7376.
26. "Temperature-dependent studies of a-SiC:H growth by remote plasma CVD using methylsilanes," M.-S. Lee, P. Lal, and S. F. Bent, *Mater. Res. Soc. Symp. Proc.*, **495** (1998) 153.
27. "NEXAFS studies of adsorption and reaction of benzene on Si(100)-2x1," M. J. Kong, A. V. Teplyakov, J. G. Lyubovitsky, and S. F. Bent, *Surf. Sci.*, **411** (1998) 286.
28. "Adsorption of ethylene on the Ge(100)-2x1 surface: coverage and time-dependent behavior," P. Lal, A. V. Teplyakov, Y. Noah, M. J. Kong, G. T. Wang, and S. F. Bent, *J. Chem. Phys.*, **110** (1999) 10545.
29. "Cycloaddition of cyclopentadiene and dicyclopentadiene on Si(100)-2x1: comparison of monomer and dimer adsorption," G. T. Wang, C. Mui, C. B. Musgrave, and S. F. Bent, *J. Phys. Chem. B*, **103** (1999) 6803.
30. "In situ diagnostics of methane/hydrogen plasma interactions with Si(100)," H. L. Duan and S. F. Bent, *Mater. Res. Soc. Symp. Proc.*, **569** (1999) 179.
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12. “Chemical bath deposition and microstructuring of tin(II) sulfide films for photovoltaics,” S. M. Herron, A. Wangperawong, and S. F. Bent, *Photovoltaic Specialists Conference (PVSC), 2011 36th IEEE*, June 2011, 000368 – 000371.
13. “Recombination barrier layers in solid-state quantum dot-sensitized solar cells,” K. E. Roelofs, T. P. Brennan, J. C. Dominguez, and S. F. Bent, *Photovoltaic Specialists Conference (PVSC), 38th IEEE Photovoltaics Specialists Conference (PVSC)*, Austin, TX., June 2012, 003040-003043.
14. “Novel photoresist thin films with in-situ photoacid generator by molecular layer deposition,” H. Zhou and S. F. Bent, *Advances in Resist Materials and Processing Technology, Proc. of SPIE*, Vol. 8682, 86820U (2013). doi: 10.1117/12.2011572.
15. “Ab initio simulation of 1D pattern formation of adsorbates on the $\text{Ge}(100)\text{-}2 \times 1$ surface,” B. Shong and S. F. Bent, *Mater. Res. Soc. Symp. Proc.*, Vol 1551 (2013). DOI: 10.1557/opl.2013.891.
16. “Molecular layer deposition of nanoscale organic films for nanoelectronics applications,” D. S. Bergsman, H. Zhou, and S. F. Bent, *Electrochemical Society Transactions*, **64** (9) (2014) 87-96. 10.1149/06409.0087ecst

Patents

“Self-organizing Nanostructured Solar Cells”

S. F. Bent and B. M. Clemens
U.S. Patent No. 8,802,483 issued 2014

“Layer-structured Fuel Cell Catalysts and Current Collectors”
S. F. Bent, X. Jiang, H. Shim, H. Huang, F. B. Prinz, X. Tian, JM. Sugawara
U. S. Patent No. 8,821,968 issued Sept. 2014

“Fabrication Method of Size-Controlled, Spatially Distributed Nanoparticles by Atomic Layer Deposition”
S. F. Bent, R. Chen, X. Jiang, Marja N. Mullings, Y. Saito
U.S. Patent No. 8,084,087, issued 2011

"Artificial Synapse Chip"
H. A. Fishman, D. Bloom, S. F. Bent, M. Peterman, J. Noolandi, and N. Mehenti
U.S. Patent No. 7,147,865, issued 2006

"Artificial Synapse Chip for Electronic Prosthetic Retina"
H. A. Fishman, M S. Blumenkranz, S. F. Bent, D. M. Bloom, M. C. Peterman
U.S. Patent No. 7,001,608, issued 2006

"Microfabricated Tissue as a Substrate for Pigment Epithelium Transplantation"
H. A. Fishman, M. Blumenkranz, S. F. Bent, C. Lee, P. Huie, Jr., and D. V. Palanker
U.S. Patent No. 6,939,378, issued 2005

Invited Lectures

1. Weizmann Institute of Science, Rehovot, Israel, 1989
2. AT&T Bell Laboratories, Murray Hill, NJ, 1991
3. IBM T. J. Watson Research Center, Yorktown Heights, NY, 1991
4. Universite Paul Sabatier, Toulouse, France, 1992
5. Wesleyan University, Physics Department, Middletown, CT, 1992
6. U. C. Berkeley, Department of Chemical Engineering, Berkeley, CA, 1993
7. Rutgers University, Laboratory for Surface Modification, Piscataway, NJ, 1995
8. PACE University, Department of Chemistry, Pleasantville, NY, 1997
9. U. C. Santa Barbara, Department of Chemistry, Santa Barbara, CA, 1997
10. Mid-Atlantic Regional Meeting of the ACS, Pleasantville, NY, 1997
11. Columbia University, Radiation Laboratory, New York, NY, 1997
12. College of Physicians and Surgeons, Columbia University, New York, NY, 1997
13. University of Southampton, Department of Chemistry, Southampton, England, 1997
14. St. John's University, Department of Chemistry, New York, NY, 1997
15. Lehigh University, Department of Chemistry, PA, 1997
16. Phi Lambda Upsilon Undergraduate Honor Society, New York University Chapter, New York, NY, 1997
17. City College of New York, Department of Chemistry, New York, NY, 1997
18. Queens College, Department of Chemistry, New York, NY, 1997
19. University of Wisconsin, Department of Chemistry, Madison, WI, 1997
20. University of Minnesota, Department of Chemistry, Minneapolis, MN, 1997
21. Barnard College, Department of Chemistry, New York, NY, 1997
22. University of Utah, Department of Chemistry, Salt Lake City, UT, 1997
23. Arizona State University, Department of Chemistry, Tempe, AZ, 1997
24. U. C. Irvine, Department of Chemistry, Irvine, CA, 1998

25. UCLA, Department of Chemical Engineering, Los Angeles, CA, 1998
26. U. C. San Diego, Department of Chemistry, San Diego, CA, 1998
27. Tufts University, Department of Chemistry, Boston, MA , 1998
28. California Institute of Technology, Department of Chemistry, Pasadena, CA, 1998
29. Stanford University, Department of Chemical Engineering, Stanford, CA, 1998
30. University of Colorado, Department of Chemical Engineering, Boulder, CO, 1998
31. University of Illinois, Chicago, Department of Chemistry, Chicago, IL, 1998
32. Telluride Meeting on Semiconductor Chemistry, Telluride, CO, 1998
33. 21st Surface/Interface Research Meeting of the Northern California Chapter of the American Vacuum Society, Davis, CA, 1998
34. 45th Annual Meeting of the American Vacuum Society, Baltimore, MD, 1998
35. Gordon Conference on Reactions at Surfaces, Ventura, CA, Discussion Leader, Feb. 28 - Mar. 1, 1999
36. *"Probing the Chemistry of Electronic Materials Processing,"* U. C. Berkeley, Department of Chemical Engineering, Berkeley, CA, March 17, 1999
37. *"Probing the Chemistry of Electronic Materials Processing,"* Purdue University, Department of Chemistry, IL, April 14, 1999
38. *"Chemical Modification of Semiconductor Surfaces by Cycloaddition Methods,"* Lucent Technologies, Bell Laboratories, Murray Hill, NJ, April 16, 1999
39. *"Chemical Modification of Semiconductor Surfaces by Cycloaddition Methods,"* U. C. Santa Cruz, Department of Chemistry, Santa Cruz, CA, May 26, 1999
40. *"Development of In Situ Diagnostics for Materials Processing,"* Beckman Young Investigators Conference, Beckman Center, Irvine, CA, August 21, 1999
41. *"A Mechanistic Picture of Growth and Microstructure Control of Amorphous Semiconductors,"* Fall Meeting of the American Chemical Society, New Orleans, LA, August 22-26, 1999
42. *"Investigating Reaction Mechanisms in Electronic Materials Processing,"* California Institute of Technology, Chemical Engineering Dept, Pasadena, CA, September 30, 1999
43. *"Investigating Reaction Mechanisms in Electronic Materials Processing,"* Department of Chemical Engineering, University of Texas, Austin, TX, February 1, 2000
44. *"Growth of Monolayer Organic Films on Semiconductor Substrates,"* Symposium on Surface Chemistry of Polymers and Organic Monolayers, Spring Meeting of the American Chemical Society, San Francisco, CA, April 26-30, 2000
45. *"Fundamental Aspects of Semiconductor Processing,"* 38th Annual Symposium, AIChE Northern California Section, Menlo Park, CA, April 21, 2000
46. *"Investigating Reaction Mechanisms in Electronic Materials Processing,"* Materials Science and Engineering Department, Stanford University, Stanford, CA, May 5, 2000
47. *"Peter Mark Memorial Award Lecture,"* 47th Annual Meeting of the American Vacuum Society, Peter Mark Memorial Award Lecture, Boston, MA, October 2-6, 2000
48. *"Functionalization and Growth of Electronic Materials,"* Department of Chemical Engineering, Massachusetts Institute of Technology, Cambridge, MA, Oct. 6, 2000
49. *"Functionalization of Silicon Surfaces,"* Symposium F: Nano- and Microcrystalline Semiconductor Materials and Structures, Materials Research Society, Fall Meeting, Boston, MA, November 29, 2000
50. *"Functionalization and Growth of Electronic Materials,"* Department of Chemistry, University of Pittsburgh, Pittsburgh, PA, December 1, 2000
51. *"Functionalization and Growth of Electronic Materials,"* Department of Chemical Engineering, U.C. San Diego, La Jolla, CA December 5, 2000
52. *"Synthetic Approaches for Molecular Functionalization of Semiconductor Surfaces,"* Gordon Research Conference on Reactions at Surfaces, Ventura, CA, Feb. 18-22, 2001

53. *"Integrating Organic Materials with Semiconductor Devices,"* 6th Annual Maria Goeppert-Mayer Interdisciplinary Symposium, San Diego Supercomputer Center at U. C. San Diego, La Jolla, California, March 3, 2001
54. *"Functionalization and Growth of Electronic Materials,"* Department of Chemical Engineering, North Carolina State University, Raleigh, NC, March 19, 2001
55. *"Functionalization and Growth of Electronic Materials,"* Department of Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA, March 20, 2001
56. *"Identification of Radical Growth Precursors in Chemical Vapor Deposition,"* Symposium on Chemistry at Solid Surfaces, Spring Meeting of the American Chemical Society, San Diego, CA, April 1, 2001
57. *"Attaching Organic Molecules to Semiconductor Surfaces,"* Symposium on Molecules as Components in Electronic Devices, Spring Meeting of the American Chemical Society, San Diego, CA, April 2, 2001
58. *"Organic Modification of Semiconductor Interfaces,"* Gordon Research Conference on Chemical Sensors and Interfacial Design, Il Ciocco, Italy, May 6-10, 2001
59. *"Functionalization and Growth of Electronic Materials,"* Department of Chemical Engineering, U. C. Santa Barbara, Santa Barbara, CA, May 31, 2001
60. *"Growth and Processing of SiC-Based Materials,"* Applied Materials, LPCVD and CVD Low k Product Units, Santa Clara, CA, June 26, 2001
61. *"Strategies for Organic Modification of Semiconductor Surfaces,"* Gordon Research Conference on Chemistry of Electronic Materials, New London, CT, July 15-19, 2001
62. *"Evidence for Cycloaddition Chemistry at Semiconductor Surfaces,"* 10th International Symposium on Novel Aromatics (ISNA-10), U. C. San Diego, La Jolla, CA, Aug. 7, 2001
63. *"Interface Engineering for Materials and Biological Applications,"* Roundtable Meeting, Center for Integrated Systems, Stanford University, Nov. 13, 2001
64. *"Interface Engineering for Materials and Biological Applications,"* U. C. Santa Barbara, Santa Barbara, CA, Feb. 8, 2002
65. *"Using Chemistry to Modify the Semiconductor Interface,"* Nanotechnology Symposium Series, University of Washington, Seattle, WA, February 19, 2002
66. *"Integrating Organic Materials with Silicon and Germanium,"* 5th Annual Flory Conference, Stanford University, Stanford, CA, February 22, 2002
67. *"Intermediates and Reaction Mechanisms in Amorphous and Microcrystalline Silicon Film Growth,"* Symposium A: Amorphous and Heterogeneous Silicon-Based Films, Materials Research Society, Spring Meeting, San Francisco, April 2-5, 2002
68. *"Interface Engineering for Materials and Biological Applications,"* Chemistry Division Colloquium, Naval Research Laboratory, Washington D.C., Apr. 10, 2002
69. *"A Molecular View of Semiconductor Processing,"* Department of Chemistry, University of Missouri, Columbia, MO, May 10, 2002
70. *"Engineering a New Pathway for Vision,"* South Bay AIChE Meeting, Silicon Valley, CA, May 22, 2002
71. *"Using Spectroscopy to Shed Light on Electronic Materials Processing,"* 56th International Symposium on Molecular Spectroscopy, Ohio State University, Columbus, Ohio, June 17-26, 2002
72. *"Using Chemistry to Modify the Semiconductor Interface,"* Department of Chemical Engineering, UCLA, Los Angeles, CA, July 11, 2002
73. *"Integrating Organic Materials with Silicon and Germanium,"* Gordon Research Conference on Electronic Processes in Organic Materials, Newport, Rhode Island, July 21-26, 2002
74. *"Interface Engineering for Materials and Biological Applications,"* Fourth Annual Beckman Scholars Symposium, Beckman Center, Irvine, CA, July 25-27, 2002
75. Telluride Workshop on Semiconductor Surface Chemistry, Telluride, CO, July 28-Aug 2, 2002

76. *"Integrating Organic Materials with Semiconductor Surfaces,"* Chemical and Materials Science Seminar, Stanford Synchrotron Radiation Laboratory, Stanford, CA, August 14, 2002
77. *"Detecting Reactive Species in Hot-Wire CVD of Si-Based Films,"* 2nd International Conference on Cat-CVD (Hot-Wire CVD) Process, Denver, CO, September 10-13, 2002
78. *"Using Spectroscopy to Shed Light on Electronic Materials Processing,"* Society for Applied Spectroscopy, Northern California Section, Mountain View, CA, September 18, 2002
79. *"Bringing Organic Chemistry to the Surface,"* Plenary Lecture, Southern California Chapter of the American Vacuum Society, Leading Edge Student Symposium, Anaheim, CA, October 2, 2002.
80. *"Integrating Organic Materials with Semiconductor Surfaces,"* Xerox PARC seminar, Palo Alto, CA, October 18, 2002.
81. *"Bringing Organic Chemistry to the Surface,"* Department of Chemistry, Harvard University, Cambridge, MA, November 14, 2002.
82. *"Organic Functionalization of Semiconductor Surfaces,"* University of California Surface Science Symposium, U. C. Riverside, Riverside, CA, February 13-14, 2003
83. *"Emerging Opportunities in New Dielectric Materials and Processes for the Future of Semiconductor Manufacturing,"* Flory Conference on Novel Electronic Materials, Stanford University, Stanford, CA, February 20-21, 2003.
84. *"Reactions at Semiconductor Surfaces: From Organic Monolayers to Templated Deposition,"* March Meeting of the American Physical Society, Austin, TX, March 3-7, 2003.
85. *"Semiconductor Surface Functionalization and Application to Atomic Layer Deposition,"* Department of Chemistry, Washington University, St. Louis, MO, April 3, 2003.
86. *"The Molecular Nature of Semiconductor Surfaces,"* Department of Chemistry, Columbia University, New York, NY, May 8, 2003.
87. 4th Annual Entrepreneur's Day (EDAY), School of Engineering, Stanford University, Stanford, CA, May 17, 2003.
88. *"Interface Engineering for Retinal Prosthetics,"* Nano and Bio-Nanoscience Research Meeting, Northern California Chapter of the AVS, University of California, Berkeley, June 11, 2003.
89. *"Elucidating Adsorption Mechanisms at the Semiconductor Interface,"* 226th National Meeting of the American Chemical Society, Colloid and Surface Chemistry Division, New York, NY, Sept 7-11, 2003.
90. *"What is a Course on Spectroscopy Doing in the Chemical Engineering Curriculum?"* 226th National Meeting of the American Chemical Society, Divisions of Chemical Education and Physical Chemistry, New York, NY, Sept 7-11, 2003.
91. *"Engineering Interfaces for Vision Restoration,"* Advanced Technology Lecture Series, Hewlett-Packard, Corvallis, OR, Sept 17, 2003.
92. *"Chemical Strategies for Organic Functionalization of Semiconductors,"* Pacific Northwest Chapter of the American Vacuum Society, Portland, OR, Sept 18-19, 2003.
93. *"Surface Modification for Area-Selective Atomic Layer Deposition,"* Department of Chemical Engineering, University of Delaware, Newark, DE, Nov 7, 2003.
94. Women in Chemical Engineering: Profiles and Motion; Panel Discussion at the National Meeting of the American Institute of Chemical Engineers, San Francisco, CA, Nov 16, 2003.
95. *"Organic Functionalization of Semiconductor Surfaces,"* Hewlett-Packard, Palo Alto, CA, December 12, 2003.
96. *"Understanding Molecular Reactivity at the Semiconductor Surface,"* Willard Davis Lecture, Department of Chemistry and Biochemistry, University of South Carolina, Columbia, SC, Jan 16, 2004.

97. Retinal Prostheses, Stanford Bioengineering Faculty Spotlight, Stanford University, Stanford, CA, Jan 28, 2004.
98. *"Reactions at Semiconductor Surfaces: From Organic Monolayers to Selective Deposition,"* Department of Chemical Engineering, University of Wisconsin, Madison, WI, Feb 3, 2004.
99. *"Carbonyl Chemistry at the Ge(100)-2x1 Surface: Spectroscopic Identification of Complex Reaction Products,"* 227th National Meeting of the American Chemical Society, Symposium on Vibrational Analyses of Dry and Wet Surfaces, Division of Colloid and Surface Chemistry, Anaheim, CA, March 28-April 1, 2004.
100. *"Organic Functionalization of Inorganic Semiconductors,"* 227th National Meeting of the American Chemical Society, Symposium on Surface Chemistry of Inorganic Materials, Division of Inorganic Chemistry, Anaheim, CA, March 28-April 1, 2004.
101. *"Engineering Interfaces for Vision Restoration,"* Stanford 2004 Biotechnology Conference, Stanford University, July 23, 2004.
102. *"Area Selective ALD of High k Dielectrics,"* ALD 2004 Conference, Helsinki, Finland, August 16-18, 2004.
103. *"Atomic Layer Deposition of High- κ Dielectrics: Substrate Preparation, Precursor Selection, and Process Conditions,"* with Charles B. Musgrave, Stanford Engineering and Science Institute 2004, Short Course on New Electronic Materials for Extending Moore's Law, August 23-27, 2004.
104. *"Micropatterning Proteins on Substrates to Direct Cell Growth for Neural Prostheses,"* SPIE Conference on Nanosensing: Materials and Devices (OE103), Symposium on Functionalization and patterning of inorganic surfaces with biomolecules and bio-organisms for sensing, Philadelphia, PA, October 25-28, 2004.
105. *"Reactions at Semiconductor Surfaces: From Organic Monolayers to Selective Atomic Layer Deposition,"* Laboratory for Surface Modification Seminar Series, Rutgers University, Piscataway, NJ, October 28, 2004.
106. *"Area Selective Atomic Layer Deposition,"* AIChE Meeting, Plenary Session, Materials Engineering and Science Division, Austin, TX, Nov 7-12, 2004.
107. *"Functionalization of Semiconductor Surfaces,"* 51st International Symposium of the American Vacuum Society, Anaheim, CA, Nov 14-19, 2004.
108. *"Layer by Layer Organic Functionalization of Semiconductors,"* 229th National American Chemical Society Meeting, San Diego, CA, Mar 13-17, 2005.
109. *"Time-Dependent Behavior in the Adsorption of Model Organic Compounds on Ge(100)-2x1,"* Materials Research Society, Spring Meeting, Symposium on In situ Studies of Gas/Solid Surface Reaction Dynamics, San Francisco, March 28-April 1, 2005.
110. *"Gaining Control of Electronic Materials: from Functionalizing Surfaces to Making Devices,"* Student Seminar Series, Department of Chemistry, University of Minnesota, Minneapolis, MN, April 5, 2005.
111. *"Reactions at Semiconductor Surfaces: From Organic Monolayers to Selective Atomic Layer Deposition,"* Department of Chemistry, Princeton University, Princeton, NJ, April 7, 2005.
112. *"Reactions at Semiconductor Surfaces: From Organic Monolayers to Selective Atomic Layer Deposition,"* Surface Science and Catalysis Seminar Series, U.C. Berkeley, Berkeley, CA, April 21, 2005.
113. *"Layer by Layer Molecular Functionalization of Semiconductors,"* International Conference on Materials for Advanced Technologies (ICMAT-2005), Materials Research Society of Singapore, Singapore, July 3-8, 2005.
114. *"Bringing Organic Chemistry to the Surface,"* Department of Chemistry, Carleton College, Northfield, MN, Sept 16, 2005.
115. *"Area Selective Atomic Layer Deposition of Electronic Materials,"* Joint Symposium on Nanoscale Materials, Processes and Devices, Kona, Hawaii, November 3-4, 2005.

116. “*Chemical Modification of Semiconductor Surfaces: Basic Principles and Applications*,” 4th International Symposium on Surface Science and Nanotechnology (ISSS-4), Omiya, Saitama, Japan, November 14-17, 2005.
117. “*Overview of ALD, Area Selective ALD, and ALD of Catalysts*,” Honda Research and Development Center, Wako, Japan, November 17, 2005.
118. “*Surface Functionalization for Area Selective Atomic Layer Deposition*,” Microscopy and Microanalysis Seminar Series, Chalmers University, Gothenburg, Sweden, March 10, 2006.
119. “*Chemical Functionalization of Semiconductor Surfaces*,” Department of Physics, Technical University of Denmark, Lyngby, Denmark, May 24, 2006.
120. “*Organic Functionalization of Semiconductor Surfaces*,” Telluride Workshop on Chemical Modification of Semiconductor Surfaces, Telluride, CO July 31- Aug. 4, 2006.
121. “*Unraveling Carbonyl Chemistry on Ge(100)-2x1 Using Vibrational Spectroscopy*,” Advanced Vibrational Spectroscopy Studies on Organic, Polymer, and Biological Surfaces, 232nd ACS National Meeting, San Francisco, CA, September 10-14, 2006.
122. “*Atomic Layer Deposition of Electrocatalytic Platinum for Solid Oxide Fuel Cells*,” Second Symposium on Atomic Layer Deposition Applications, 210th Meeting of the Electrochemical Society, Cancun, Mexico, Oct 29-Nov 3, 2006.
123. “*Surface Functionalization for Selective Area ALD*,” 53rd International Symposium of the American Vacuum Society, San Francisco, CA, Nov 12-17, 2006.
124. “*Elucidating Carbonyl Chemistry on Ge(100)-2x1*,” AIChE Meeting, San Francisco, CA, Nov 12-17, 2006.
125. “*Surface Functionalization for Area Selective Atomic Layer Deposition*,” Sandia National Laboratory, Albuquerque, NM, February 21, 2007.
126. “*Organic Chemistry at the Semiconductor Surface*,” Fourth San Luis Conference on Surfaces, Interfaces and Catalysis, Cuernavaca, Mexico, April 14-22, 2007.
127. “*Surface Functionalization for Selective Area ALD*,” Intel Corporation, Teleseminar, May 20, 2007.
128. “*Preventing Blindness: Retinal Implants*,” E-Day 2007, Engineering From Head to Toe, School of Engineering, Stanford University, Stanford, CA, July 21, 2007.
129. “*Organic Functionalization of Semiconductor Surfaces*,” 11th International Conference on the Formation of Semiconductor Interfaces (ICFSI - 11), Manaus - Amazonas, Brazil August 19-24, 2007.
130. “*Understanding Area Selective ALD*,” EuroCVD 16 Conference, Den Haag, The Netherlands, Sept 16-21, 2007.
131. “*Inorganic Nanocomposite Solar Cells*,” GCEP Research Symposium, Stanford University, Stanford, CA Oct 2, 2007.
132. “*Modifying Electronic Materials: from Functionalizing Surfaces to Making Devices*,” Department of Chemical Engineering, Pennsylvania State University, State College, PA, Oct 4, 2007.
133. “*Molecular Approaches to Modifying Semiconductor Surfaces*,” Materials Science Institute Retreat, University of Oregon, Salishan Lodge, Glenden Beach, OR, Dec 11-13, 2007.
134. “*Modifying Electronic Materials: from Functionalizing Surfaces to Making Devices*,” Distinguished Lecturer Series, Department of Chemical Engineering, University of Utah, Salt Lake City, UT, Feb 19, 2008.
135. “*Understanding and Exploiting Molecular Bonding at the Semiconductor Surface*,” Department of Chemistry, Johns Hopkins University, Mar 18, 2008.
136. “*Exploring Atomic Layer Deposition for Catalysis and Energy Applications*,” Department of Materials Science and Engineering, and NanoCenter, University of Maryland, College Park, MD, Mar 19, 2008.

137. “*Understanding and Exploiting Molecular Bonding at the Semiconductor Surface*,” Department of Chemistry, University of Delaware, Newark, DE, Mar 21, 2008.
138. “*Exploring Atomic Layer Deposition for Catalysis and Energy Applications*,” Department of Chemical Engineering, Colorado School of Mines, Golden, CO, Mar 28, 2008.
139. “*Combining Quantum Chemistry with Vibrational Spectroscopy to Elucidate Bonding at the Organic-Semiconductor Interface*,” Computational Spectroscopy Symposium, Physical Chemistry Division, 235th National American Chemical Society Meeting, New Orleans, LA, Apr 6-10, 2008.
140. “*Molecular Approaches to Modifying Surfaces*,” Department of Chemistry, Seoul National University, Seoul, Korea, April 14, 2008.
141. “*Molecular Approaches to Modifying Surfaces*,” Korea Advanced Institute of Science and Technology (KAIST), Seoul, Korea, April 16, 2008.
142. “*Molecular Approaches to Modifying Surfaces*,” Nano-Energy Fusion Physical Chemistry Symposium, Korean Chemical Society Meeting, Seoul, Korea, April 17-18, 2008.
143. “*Preventing Blindness: Retinal Implants*,” Medical School Reunion Weekend, Stanford University, Stanford, CA, April 26, 2008.
144. “*Powering the Future with Sustainable Energy*,” Summer Science Lecture Series, Stanford University, August 21, 2008.
145. “*Solar Energy*,” Energy Supply Panel, Woods/Precourt Affiliate Conference, Stanford University, Stanford, CA, September 12, 2008.
146. “*Exploring Atomic Layer Deposition for Catalysis and Energy Applications*,” Department of Chemical Engineering, U.C. Berkeley, California, Oct 15, 2008.
147. “*Area Selective Atomic Layer Deposition*,” Molecular Foundry, Lawrence Berkeley National Laboratory, Berkeley, California, Jan 6, 2009.
148. “*Solar Energy*,” Horn Lecture Panel on “Fueling the Future”, Woods Institute, Stanford University, Stanford, CA, Jan 20, 2009.
149. “*Forming Catalysts by Atomic Layer Deposition: from Thin Films to Nanoparticles*” Department of Chemical and Biological Engineering, Drexel University, Philadelphia, PA, Feb 27, 2009.
150. “*The Role of Dative Bonding in Reactions at Semiconductor Surfaces*,” Gordon Research Conference on Inorganic Reaction Mechanisms, Galveston, TX, March 8, 2009.
151. “*Earth Abundant Chalcogenide Materials for Thin Film PV*,” SPRC Workshop on Inorganic Thin Film Materials: Toward Grid Parity, Stanford, CA, March 14, 2009.
152. “*Forming Catalysts by Atomic Layer Deposition: from Thin Films to Nanoparticles*,” Lawrence Livermore National Laboratory, Livermore, CA, April 21, 2009.
153. “*New Approaches to Making Materials for Sustainable Energy*” Department of Mechanical Science and Engineering, University of Illinois, Urbana-Champaign, IL, April 28, 2009.
154. “*New Approaches to Making Materials for Sustainable Energy Devices*,” Department of Chemical Engineering, University of California, Riverside, CA, May 8, 2009.
155. “*The Future of Energy*,” presentation with Sally Benson, Leading Matters San Francisco, San Francisco, CA, May 9, 2009.
156. “*The Undergraduate Research Experience: Friend or Foe?*” Award Winning Teachers on Teaching, Stanford University, Stanford, CA, May 14, 2009.
157. “*Organic Barrier Layers Using Molecular Layer Deposition*,” SRC E-Workshop, June 25, 2009.
158. “*Making Solar Power Affordable*,” E-Day 2009, School of Engineering, Stanford University, Stanford, CA, July 11, 2009.
159. “*Molecular Approaches to Modifying Semiconductor Surfaces*,” Trinity College, Dublin, Ireland, October 2, 2009.

160. “DOE Energy Frontier Research Center on Nanostructuring for Efficient Energy Conversion (CNEEC),” DOE Synthesis and Processing Sciences Contractors Meeting, Arlington, Virginia, October 26-28, 2009.
161. “DOE Energy Frontier Research Center on Nanostructuring for Efficient Energy Conversion (CNEEC),” 56th International Meeting of the AVS, San Jose, CA, Nov 8-13, 2009.
162. “Materials for Thin Film Photovoltaics,” 2010 Stanford University Photonics Retreat, Napa, CA, April 10, 2010.
163. “DOE Energy Frontier Research Center on Nanostructuring for Efficient Energy Conversion (CNEEC),” Workshop on Photovoltaics, Center for Emerging Energy Technologies (CEET), University of New Mexico, Albuquerque, NM, April 19, 2010.
164. “Chalcogenide Thin Film Photovoltaics,” Department of Chemical and Nuclear Engineering, University of New Mexico, Albuquerque, NM, April 20, 2010.
165. “Nanostructuring for Efficient Energy Conversion,” Stanford Energy Seminar, Stanford University, Stanford, CA, May 26, 2010.
166. Telluride Workshop on Semiconductor Surface Chemistry, Telluride, CO, July 26-30, 2010.
167. “Comparison of HWCVD and MLD approaches for forming nanoscale organic thin films,” Sixth International Conference on Hot-Wire Chemical Vapor Deposition (Cat-CVD) Process, Ecole Polytechnique, Palaiseau, France, September 13-17, 2010.
168. “Molecular Layer Deposition of Organic Thin Films for Copper Diffusion Barriers,” ITRS-Emerging Research Materials Workshop on Ultrathin Cu Barriers, e-Workshop, September 23, 2010.
169. “Earth Abundant Chalcogenide Materials for Thin Film PV,” ECS Symposium on Photovoltaics for the 21st Century 6, Las Vegas, NV, Oct 10-15, 2010.
170. “Engineering interfaces for energy conversion,” Department of Chemical Engineering, Caltech, Pasadena, CA, November 4, 2010.
171. “Investigating interfacial barrier layers in quantum dot and dye sensitized solar cells,” Gordon Conference on Chemical Reactions at Surfaces, Ventura, CA, February 6-11, 2011.
172. “Nanostructuring for efficient energy conversion,” Plenary talk, AAAS Annual Meeting, Washington, D.C., 17-21 February, 2011.
173. “Engineering interfaces for photovoltaic energy conversion,” Materials for Energy Applications Session, 2011 March Meeting of the American Physical Society, Dallas, TX, March 21-25, 2011.
174. “Engineering interfaces for efficient solar energy conversion,” Nanotechnology and Materials Seminar Series, Department of Chemistry, University of Texas, Austin, TX, March 30, 2011.
175. “Functionalizing Surfaces for Efficient Solar Energy Conversion,” Department of Chemistry, University of Calgary, BC, Canada, April 1, 2011.
176. “Functionalizing Surfaces for Efficient Solar Energy Conversion,” Department of Chemistry, University of California, Irvine, April 26, 2011.
177. “Functionalizing Surfaces for Efficient Solar Energy Conversion,” Department of Chemistry, Northwestern University, Evanston, IL, May 4, 2011.
178. “Modifying interfaces for efficient solar energy conversion,” 242nd American Chemical Society National Meeting, Denver, CO, August 28 - September 1, 2011.
179. “Nanoscale Materials for Sustainable Energy,” Energy@Stanford & SLAC Summer Conference, Stanford, CA, Sept 12-16, 2011.
180. “Molecular Layer Deposition of Nanoscale Organic Films for Copper Diffusion Barriers” Advanced Metallization Conference 2011, San Diego, CA, October 4-6, 2011.

181. *“Improving solar energy conversion with nanoscale materials,”* AIP-AVS Industrial Physics Forum on Energy: Transition to a sustainable future, AVS National Meeting, Nashville TN, Oct 31-Nov. 1, 2011.
182. *“Nanoscale materials for efficient energy conversion,”* Energy and Environment Affiliates Program Conference, Stanford University, Stanford, CA, Nov 2-3, 2011.
183. *“Improving solar energy conversion with nanoscale materials,”* Africa MRS Meeting, Victoria Falls City, Zimbabwe, December 11-17, 2011.
184. *“Engineering Interfaces for Energy Conversion and Nanoelectronics,”* Department of Chemical Engineering, University of Southern California, Los Angeles, CA, February 9, 2012.
185. *“Improving Energy Conversion with Nanoscale Materials and the CNEEC EFRC Program,”* Keynote speech, Japan NANO 2012 Symposium, Tokyo, Japan, February 17, 2012.
186. *“Cheap and Thin: Two Processing Approaches to Manufacturable Solar Cells,”* Symposium V on Advanced Materials Processing for Scalable Solar Cell Manufacturing II, Spring Meeting of the Materials Research Society, San Francisco, CA, April 9-13, 2012.
187. *“Applications of Atomic Layer Deposition to Photovoltaics,”* Miasole, Sunnyvale, CA May 8, 2012.
188. *“Nanoparticles by ALD: From Nucleation Mechanisms to Applications in Quantum Dot Solar Cells,”* 12th International Conference on Atomic Layer Deposition (AVS-ALD), Dresden, Germany, June 17-20, 2012.
189. *“Functionalizing Semiconductor Surfaces by Monolayer and Multilayer Chemistry,”* International Conference on Solid Films and Surfaces (ICSFS 16), Genoa, Italy, July 1-6, 2012.
190. *“Functionalizing Solid Surfaces by Monolayer and Multilayer Chemistry: From Fundamentals to Applications,”* 244th ACS National Meeting, Philadelphia, PA, August 19-23, 2012.
191. *“Controlling deposition in ALD: From continuous films to nanoparticles, and applications in energy conversion,”* Workshop on New Frontiers in Plasma Nanopatterning Sponsored by The Molecular Foundry / Oxford Instruments, Lawrence Berkeley National Laboratory, Berkeley, CA, October 3rd, 2012.
192. *“Nanoparticles and quantum dots: from nucleation mechanisms to applications in solar cells,”* Chemical and Biomolecular Engineering Colloquium, U. C. Berkeley, Berkeley, CA, November 14, 2012.
193. *“Atomic Layer Deposition: Nucleation, Growth, and Applications,”* Applied Materials, December 17, 2012.
194. Gordon Conference on Nanomaterials for Energy-Conversion: Electrochemical Energy Conversion and Storage, Ventura, CA, Discussion Leader, Feb. 3-8, 2013.
195. *“Challenges and Solutions for More Sustainable Energy Systems,”* Keynote Speech, Symposium on Technology for Clean Energy, Northern California AVS Joint User Group Topical Conference, San Jose, CA, Feb. 21, 2013.
196. *“Designing catalysts using layer by layer growth,”* Surface Science and Catalysis Seminar Series, U.C. Berkeley, Berkeley, CA, February 28, 2013.
197. Research Partnership Workshop on Water, Energy and the Environment for Women Scientists from the U.S., Morocco, Algeria and Tunisia, Casablanca, Morocco, March 5-8, 2013.
198. *“Functionalizing Semiconductor Surfaces by Monolayer and Multilayer Chemistry: Toward Control of Nanoscale Materials,”* Symposium on Surfaces of Nanoscale Semiconductors, 2013 Spring Meeting of the Materials Research Society, San Francisco, CA, March 31- April 5, 2013.

199. *“Presidential Commission on Graduate Education,”* 245th ACS National Meeting, New Orleans, LA, April 7-11, 2013.
200. *“Modifying Interfaces for Energy Conversion and Nanoelectronics,”* Department of Chemical Engineering, University of Rochester, Rochester, NY, April 17, 2013.
201. *“The Potential for ALD to Meet Future Energy Challenges,”* Future of ALD-DARPA Workshop, Chicago, IL, April 20-21, 2013.
202. *“Reactions of Organic Molecules at the Germanium Surface,”* Plenary Talk, 14th International Conference on the Coordination and Organometallic Chemistry of Germanium, Tin and Lead, Cape Breton, Nova Scotia, Canada, July 14-19, 2013.
203. *“Nanoparticles and quantum dots: from nucleation mechanisms to applications in solar cells,”* Okinawa Institute of Science and Technology, Okinawa, Japan, September 11-13, 2013.
204. *“Molecular Layer Deposition of Organic Films for Nanoelectronics Applications,”* 60th Annual AVS International Symposium, Long Beach, CA, Oct 27-Nov 1, 2013.
205. *“Manganese oxide oxygen evolution catalysts deposited by ALD,”* Symposium on “Nanomaterials for Energy Capture, Conversion, and Storage”, Inorganic Chemistry Division, Spring 2014 ACS National Meeting, Dallas, TX, 16-20 March 2014.
206. *“Strategies for selective deposition of organic and inorganic materials on patterned substrates,”* Symposium on “Molecular Processes for Selective Deposition, Modification, Placement and Assembly of Nanostructures”, Colloid and Surface Chemistry Division, Spring 2014 ACS National Meeting, Dallas, TX, 16-20 March 2014.
207. *“Understanding nucleation in metal ALD,”* Ultratech ALD User Group meeting, Stanford University, Stanford, CA, April 1-2, 2014.
208. *“Selective Deposition of Dielectrics,”* SRC e-workshop, April 17, 2014.
209. *“Molecular Layer Deposition of Organic and Hybrid Films for Interconnect Technologies,”* Symposium on Advanced Interconnects for Micro- and Nanoelectronics–Materials, Processes, and Reliability, 2014 Spring Meeting of the Materials Research Society, San Francisco, CA, April 21-25, 2014.
210. *“Improving Energy Conversion with Nanoscale Materials,”* Department of Energy Resources Engineering, Stanford University, Stanford CA, April 28, 2014.
211. *“ALD Materials for Energy Conversion,”* CIS Roundtable Meeting, Stanford University, Stanford, CA, May 13, 2014.
212. *“Atomic Layer Deposition: From Fundamental Mechanisms to Applications in Sustainable Energy,”* Materials Science Special Colloquium, Argonne National Laboratory, Lemont, IL, June 5, 2014.
213. *“Shining Light on Energy,”* Leonardo Art Science Evenings (LASERs), Stanford University, Office of Science Outreach and the Arts Program, June 12, 2014.
214. *“Designing catalysts using layer by layer growth,”* SUNCAT Industrial Affiliates Program, Stanford University, Stanford, CA, June 12, 2014.
215. *“Quantum Dot Solar Cells,”* 4th Sungkyun International Solar Forum (SISF 2014), Sungkyunkwan University, Seoul, Korea, July 5-7, 2014.
216. *“Improving energy conversion with nanoscale materials,”* Yonsei University, Seoul, Korea, July 7, 2014.
217. *“Improving energy conversion with nanoscale materials,”* Department of Energy Sciences, Sungkyunkwan University (SKKU), Seoul, Korea, July 8, 2014.
218. *“Role of Molecular Structure in Organic Functionalization of Semiconductor Surfaces,”* Telluride Workshop on Semiconductor Surface Chemistry, Telluride, CO, July 28-Aug 1, 2014.
219. *“Fundamentals of Nucleation in Atomic Layer Deposition,”* Telluride Workshop on Semiconductor Surface Chemistry, Telluride, CO, July 28-Aug 1, 2014.
220. *“Role of Molecular Structure in Surface Chemical Reactivity,”* Symposium on “Advances in Molecular–Level Understanding of Surface Reactivity” Colloid and

- Surface Chemistry Division, 2014 Fall ACS National Meeting, San Francisco, CA, Aug 10-14, 2014.
221. *“Molecular Functionalization of Semiconductor Surfaces,”* 30th European Conference on Surface Science, ECOSS-30, Antalya, Turkey, August 31–September 5, 2014.
 222. *“Improving Energy Conversion with Nanoscale Materials,”* Energy@Stanford & SLAC Summer Conference, Stanford, CA, Sept 1, 2014.
 223. *“Molecular Layer Deposition of Nanoscale Organic Films for Nanoelectronics Applications,”* 226th Electrochemical Society Fall Meeting, Cancun, Mexico, Oct. 5-10, 2014.
 224. *“Understanding and Improving Solar Energy Conversion through Interface Engineering,”* PacSurf 2014, Kohala Coast, Hawaii, Dec 7-11, 2014.
 225. *“Atomic Layer Deposition of Nanoscale Materials for Energy Conversion Applications,”* Center for Condensed Matter Science, National Taiwan University, Jan 27, 2015.
 226. *“Atomic Layer Deposition of Nanoscale Materials for Energy Conversion Applications,”* Instrument Technology Research Center (ITRC), Taipei, Taiwan, Jan 28, 2015.
 227. *“Atomic Layer Deposition: From Fundamentals to Applications,”* Keynote talk, Physical Society Republic of China, 2015 Annual Meeting - AVS Taiwan Chapter Session, Taipei, Taiwan, Jan 29, 2015.
 228. *“Improving Energy Conversion with Nanoscale Materials,”* Molecular Foundry, Lawrence Berkeley National Laboratory, Berkeley, CA, February 3, 2015.
 229. Gordon Conference on Chemical Reactions at Surfaces, Ventura, CA Discussion Leader, February 8-12, 2015.
 230. *“Powering the Future with Sustainable Energy: How Do We Get There?”* Stanford Parents Weekend 2015, Stanford, CA, February 28, 2015.
 231. *“Tuning the Properties of Quantum Dot Solar Cells by Surface Functionalization,”* Symposium on “The interplay of structure and carrier dynamics in energy-relevant nanomaterials” 2015 MRS Spring Meeting, San Francisco, CA, April 6 – 10, 2015.
 232. *“Molecular Functionalization of Semiconductor Surfaces,”* Colloquium, Center on Structure and Dynamics of Internal Interfaces, Philipps-Universität Marburg, Marburg, Germany, April 28, 2015.
 233. *“The Role of Interface Engineering in Next Generation Photovoltaics,”* From the Witches Cauldrons in Materials Science, Goslar, Germany, April 29-30, 2015.
 234. *“Molecular Functionalization of Semiconductor Surfaces: From Single Crystals to Quantum Dots,”* 8th Biennial International Conference on Materials for Advanced Technologies (ICMAT), Symposium on Surfaces/Interfaces Modification by Molecules, Singapore, June 28-July 3, 2015.
 235. *“Nucleation in Atomic Layer Deposition: From Fundamentals to Applications,”* Intermolecular, San Jose, CA, July 16, 2015.
 236. *“Applications of Atomic and Molecular Layer Deposition: Toward Catalysts, Solar Cells, and Nanoelectronics,”* 1st International Conference on Applied Surface Science (ICASS), Shanghai, China, July 27-30, 2015, plenary talk.
 237. *“Designing Catalysts using Layer by Layer Growth,”* Energy@Stanford & SLAC Summer Conference, Stanford, CA, Sept 10, 2015.
 238. *“Nanoscale Materials for Energy Conversion,”* Institute of Materials Science and Engineering (IMSE) Seminar Series, Washington University in St. Louis, St. Louis, MO, October 9, 2015.
 239. *“Molecular Functionalization of Semiconductor Surfaces: From Single Crystals to Quantum Dots,”* 62nd Annual International AVS Symposium, San Jose, CA, October 18 – 23, 2015.
 240. *“Controlled Synthesis and Study of Nanoscale Materials for Energy Conversion,”* Department of Chemical and Biological Engineering, Tufts University, Medford, MA, November 30, 2015.

241. *“Controlled Synthesis and Study of Nanoscale Materials for Energy Conversion,”* Department of Chemical and Biomolecular Engineering, Cornell University, Ithaca, NY, February 1, 2016.
242. *“Nanoscale Materials for Sustainable Energy,”* Department of Chemical and Biological Engineering, South Dakota School of Mines and Technology, Rapid City, SD, Feb 23, 2016.
243. *“Designing Functional Materials using Layer by Layer Growth,”* Department of Chemical Engineering at the University of Florida, Gainesville, FL, March 7, 2016.
244. *“Atomic Layer Deposited Transition Metal Oxides as Active Electrocatalysts for the Oxygen Evolution Reaction,”* Symposium on “Surface chemistry and catalysis of transition metal oxides,” 251st ACS National Meeting & Exposition, San Diego, CA, March 13-17, 2016.
245. *“Strategies for Selective Deposition of Metal Oxides,”* Symposium EP11, “Novel Materials for End-of-Roadmap Devices in Logic, Power and Memory”, 2016 MRS Spring Meeting, Phoenix, AZ, March 28 – Apr 1, 2016.
246. *“Understanding Nucleation and Growth of Metal Oxides by Atomic Layer Deposition,”* Symposium EP5, “Metal Oxide Hetero-Interfaces in Hybrid Electronic Platforms”, 2016 MRS Spring Meeting, Phoenix, AZ, March 28 – Apr 1, 2016.
247. *“Layer-by-Layer Synthesis of Nanoscale Materials for Energy Conversion,”* 2016 Reilly Lectures, Department of Chemical and Biomolecular Engineering, University of Notre Dame, South Bend, IN, April 5, 2016.
248. *“Powering the Future with Sustainable Energy: How Do We Get There?”* 2016 Reilly Lectures, Department of Chemical and Biomolecular Engineering, University of Notre Dame, South Bend, IN, April 6, 2016.
249. *“Creating Active Electrocatalysts for the Oxygen Evolution Reaction by Atomic Layer Deposition,”* 2016 International Conference on Metallurgical Coatings and Thin Films (ICMCTF) Symposium; Session on “Thin Films and Coatings for Photo-Electrochemical Cells”; San Diego, CA, April 25-29, 2016.
250. *“Designing Catalysts using Layer by Layer Growth,”* 2016 Summer School/Workshop: “Reactivity of nanoparticles for efficient and sustainable energy production -IV”, Kysthusene, Gilleleje, Denmark, August 7-12, 2016.
251. *“Layer-by-Layer Synthesis of Nanomaterials for Energy Applications,”* Kavli Nanoscience Symposium, Trondheim, Norway, September 7-8, 2016.
252. *“Designing Catalysts using Atomic Layer Deposition,”* Dept. of Materials Science and Engineering, NTNU, Trondheim, Norway, September 9, 2016.
253. *“Creating Catalysts using Layer by Layer Growth,”* Energy@Stanford & SLAC Summer Conference, Stanford, CA, Sept 15, 2016.
254. *“Strategies for Area Selective Deposition,”* SRC e-Workshop, October 5, 2016.
255. *“Nucleation in Atomic Layer Deposition: From Fundamentals to Applications,”* US Army Research Laboratory, Adelphi, MD, October 27, 2016.
256. *“Nucleation in Atomic Layer Deposition: From Fundamentals to Applications,”* Academic Lecture Series, Dow Chemical Company Electronic Materials Division, Marlborough, MA, October 28, 2016.
257. *“Research and Innovation in Advanced Materials for Sustainable Energy,”* International Symposium on the development of green chemistry in the world for Taiwan Industry, Industrial Development Bureau of the Ministry of Economic Affairs, Republic of China (Taiwan), November 11, 2016.
258. *“Organic Functionalization of Semiconductor Surfaces,”* Collaborative Research Center on “Hybrid Inorganic/Organic Systems for Opto-Electronics (HIOS)”, Berlin, Germany, December 15, 2016.

259. *“Understanding Surface Chemistry of Atomic Layer Deposition: Toward Renewable Energy Applications,”* Physics and Chemistry of Surfaces and Interfaces (PCSI) Conference, Santa Fe, New Mexico (Jan 15-19, 2017).
260. *“Molecular Surface Science: Uncovering Reaction Mechanisms in Electronics and Catalysis,”* 1st Morino Lecture, Kashiwa Campus, University of Tokyo, Tokyo, Japan (March 13, 2017).
261. *“Molecular Surface Science: Uncovering Reaction Mechanisms in Electronics and Catalysis,”* 2nd Morino Lecture, Institute for Molecular Science, Okazaki, Japan (March 15, 2017).
262. *“Molecular Surface Science: Uncovering Reaction Mechanisms in Electronics and Catalysis,”* 3rd Morino Lecture, Kyoto University, Kyoto, Japan (March 16, 2017).
263. *“Nanoscale Materials for Energy Conversion Applications,”* Physical Society of Japan (PSJ) Spring Meeting (March 17, 2017).
264. *“New Strategies for Selective Deposition of Nanoscale Materials,”* Symposium on Deposition and Etching of Nanostructures, COLL Division, Spring 2017 ACS meeting, San Francisco, CA (April 2-6, 2017).
265. *“Modifying Catalysts using Atomic Layer Deposition,”* Symposium in honor of Cynthia Friend, ACS Catalysis Division, Spring 2017 ACS meeting, San Francisco, CA (April 2-6, 2017)
266. 2nd Area Selective Deposition Workshop (ASD 2017), Eindhoven, The Netherland (April 21, 2017).
267. Department of Chemical Engineering, Columbia University, New York, NY (April 25, 2017).
268. Department of Chemistry, Northwestern University, Evanston, IL (April 28, 2017).
269. *“Topographical and Area Selectivity in Atomic Layer Deposition,”* EuroCVD – BalticALD Conference, Linköping, Sweden (June 11-14, 2017).
270. 4th International Atomic Layer Etching Workshop (ALE2017), Denver (July 15-17, 2017).
271. Symposium on Chalcogenide Semiconductor Research and Applications (CSRA), International Materials Research Congress (IMRC) 2017 Meeting, Cancun, Mexico (Aug 21-22, 2017).
272. Department of Chemistry, Materials Chemistry Seminar Series, Indiana University (Oct 17, 2017).
273. International Symposium on Hybrid Materials and Processing, Busan, Korea (November 5-8, 2017), Keynote Talk.