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## Curriculum Vitae

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### Education

1977 B.A., Chemistry, William Paterson College of New Jersey

1981 Ph.D., Chemistry, Princeton University

*Thesis title: "Investigation of Oxide Bound Transition Metal Complexes"*

*Advisor: Prof. Jeffrey Schwartz*

1981 Robert A. Welch Postdoctoral Fellow, University of Texas at Austin

*Topic: "Fundamental Investigations of Semiconductor Particles"*

*Advisor: Prof. Allen J. Bard*

### Career Experience

1982-1984 Project Leader, Standard Oil Company of Ohio, Warrensville Heights, OH

1984-1990 Research Scientist, Central Research and Development Department, E. I. duPont de Nemours and Co., Inc., Wilmington, DE

1990-1993 Associate Professor, Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN

1990-2006 Graduate Faculty Member, Department of Chemistry, University of Minnesota

1993-2006 Professor, Department of Chemical Engineering and Materials Science, University of Minnesota

1998-1999 Co-Director, University of Minnesota NSF Materials Research Science and Engineering Center

1999-2005 Director, University of Minnesota NSF Materials Research Science and Engineering Center

1999-2021 Associate Editor, *Chemistry of Materials*, American Chemical Society

2006-present Professor, Department of Chemistry, New York University

2006-present Director, Molecular Design Institute, New York University

2008-2017 Director, NYU Materials Research Science and Engineering Center

2009- 2014 Chair, NYU Department of Chemistry

### Selected Awards and Honors

Shell Chair in Chemical Engineering, 1993 - 1995

Mondale Fellow, Hubert H. Humphrey Institute, University of Minnesota, 1993 - 94

Outstanding Instructor Award, CEMS, 1995

Outstanding Instructor Award, CEMS, 1996

3M Lecturer, University of Minnesota, 1987

Merck Centennial Lecturer, California Institute of Technology, 1992

"Moderni Metodi Elettrochimici" Lectures, University of Padova, Italy, 1997

NSF Creativity Extension Award, 1997

George Taylor Distinguished Research Award, 1998

Professeur Invité, Université Louis Pasteur, Strasbourg, 1998

Frontiers Lecturer, Case-Western Reserve University, 1999

Distinguished McKnight University Professor, 1999

Molecular Design Institute Lecturer, Georgia Institute of Technology, 2001

Professeur Invité, Université Louis Pasteur, Strasbourg, 2004

Professeur Invité, Université Louis Pasteur, Strasbourg, 2005

Professeur Invité, Université Louis Pasteur, Strasbourg, 2008

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Julius Silver, Roslyn S. Silver and Enid Silver Winslow Professorship (NYU), 2009  
Fellow, Materials Research Society, 2011  
Fellow, American Chemical Society, 2011  
Fellow, American Association for the Advancement of Science, 2011  
Professeur Invité, Université Louis Pasteur, Strasbourg, 2016-2017  
Fellow, European Academy of Science, 2018 (inducted 2019)

## UNIVERSITY SERVICE

### University of Minnesota

- Walter Library Committee, 1992
- Planning Committee, Amundson Hall Renovation/Piercy Wing Addition, 1995 – 2000
- Coordinator, Amundson Hall Renovation and Piercy Wing Addition, 1995
- Director of Graduate Studies, Materials Science 1994 – 97
- IT Promotion and Tenure Committee, 1999
- Industrial Partnership for Research in Interfacial and Materials Engineering, Executive Committee, 1998 - 2005
- Characterization Facility X-ray supervisor, 1994 - 2005
- Characterization Facility Advisory Committee, 2000 – 2005
- Member, Chemical Biology Initiative Steering Committee, 2004 - 2005
- Co-Director, University of Minnesota Materials Research Science and Engineering Center, 1998-99
- Director, University of Minnesota Materials Research Science and Engineering Center, 1999-2005

### New York University

- University Academic Priorities Committee, 2007 - 2010
- NYU-Poly Advisory Committee on Academic Priorities
- Department of Chemistry Graduate Admissions Committee 2007-2008
- Director, *Molecular Design Institute* 2007 - present
- Chair, Departmental Promotion and Tenure Committee for Alexej Jerschow, 2007
- Chair, Departmental Promotion and Tenure Committee for Kent Kirshenbaum, 2007
- Co-Chair, Department Chair Search Committee, Chemistry/Chemical Engineering, Polytechnic, 2008
- Committee on General Education Reform, 2008
- Executive Committee, Department of Chemistry, 2006 - 2014
- Co-organizer, Martin Pope Symposium, 2007
- Time & Effort Policy Steering Committee, 2008
- Director, NYU Materials Research Science and Engineering Center, 2008-present
- NYU Abu Dhabi Coordinating Group, 2008
- NYU Time & Effort Design Committee, 2009
- FAS Dean Search Committee, 2009-10, 2010-11
- Mentor, Noyce Scholars Program (Brad Nakamura)
- Search Committee, Assistant Vice President of Post-Award Financial Operations, 2010
- NYU Abu Dhabi Search Committee, Chemistry, 2009
- Polytechnic at NYU Blue Ribbon Recruiting Panel, 2010-11
- Committee for FAS clinical guidelines, 2010-present
- Department of Chemistry, MDI Search Committee, 2010/11
- GSAS Dean Search Committee, 2011-12
- Faculty Committee on FAS Guidelines for the Appointment of Contract Faculty, 2010-11
- Search Committee, NYU Polytechnic President, 2012-2013
- FAS Dean Search Committee 2012-13
- Trustee and Board Member, Chemists' Club, 2010-present
- Grants Administration Business Improvement Core Committee, 2013 – 2015
- NYU Shanghai Search Committee, 2014-2015
- Chair, Department of Chemistry Shared Facilities Committee 2014-2017
- FAS Iakobachvili Award Committee, 2014 – 2016
- NYU Technology Acceleration & Commercialization Review Committee, 2014 - present
- Chair, Promotion & Tenure Committee, Andrew Hamilton, 2016
- Chair, Promotion & Tenure Committee, Pance Naumov, NYUAD, 2015-2016
- Chair, Tianning Diao Advisory Committee, 2014-present

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- Member, Stefano Sacanna Advisory Committee, 2014-present
- Member, Silver Science Teaching Labs Committee 2016
- Chair, Department of Chemistry, Chemistry3 planning committee, 2016-2017
- GSAS Dean Search Committee, 2016-17
- Chair, Promotion & Tenure Committee, Ali Trabolsi, NYUAD, 2016
- Member, Department of Chemistry Faculty Search Committee, 2016-2017
- Member, Department of Chemistry Faculty Search Committee, 2017-2018
- Member, Department of Chemistry Faculty Search Committee, 2018-2019
- Member, Academic Program Assessment Committee (APAC) on Core Requirements, 2018-2019
- Chair, APAC Subcommittee, The Core and the Global Network, 2018-2019
- Member, Department of Chemistry Executive Committee, 2018-2019
- Member, Department of Chemistry Space Planning Committee, 2018-2019
- Member, Provost's Academic Advisory Committee on Tenure, 2018 – 2021
- Member, CAS Core Implementation Committee, 2019 – 2021
- Member, Department of Chemistry Shared Facilities Committee 2017-2020
- Chair, Promotion Committee, Pance Naumov, NYUAD, 2019-2020
- Member, FAS Promotion and Tenure Committee, 2019 – 2022
- Chair, Promotion Committee, Ali Trabolsi, 2020
- NYU Innovation Council (Office of the Vice Provost for Research), 2020 – 2022
- Chair, Department of Chemistry Awards Committee, 2021 – present
- Member, University Self-Study, Research Working Group
- Chair, Promotion Committee, Tianning Diao, Fall 2022

#### EXTERNAL SERVICE

- Editor, *Chemistry of Materials*, June 1999 – 2021
- Editorial Advisory Board, *Chemistry of Materials*, 1995 – 1999
- Royal Society, *Crystal Engineering*, Editorial Advisory Board, 2000 - 2010
- Advisory Council, International Conference on the Chemistry of the Organic Solid State, 1998 – present
- Advisory Board, Materials and Interfaces group, Weizmann Institute of Science, 2006
- Consultant, Vermont EPSCOR, 2005
- Editorial Advisory Board, *Supramolecular Science*, 1995 – 1998
- Co-Editor, *Chemistry of Materials*, Special Issue on Organic Solid State Chemistry, 1994
- Planning Committee for Workshop on Solid State Chemistry and Materials, *National Science Foundation*
- Chair, Gordon Research Conference, Organic Structure and Properties, Summer 2000
- Chair, Solid State Subdivision, Inorganic Division of the American Chemical Society, 1999
- Panelist (multiple panels, including NSEC and MRSEC), National Science Foundation
- Department Review Committee, University of Toronto, Department of Chemical Engineering
- EPSCOR Review Panel, Vermont EPSCOR
- Advisory Board, Steacie Molecular Institute, National Research Council of Canada
- Advisory Board, Georgia Institute of Technology, Department of Chemistry
- Advisory Board, University of Wisconsin Materials Research Science and Engineering Center
- Advisory Board, University of California at Santa Barbara Materials Research Laboratory
- Site Review Panelist, National Science Foundation, Brown University MRSEC
- Site Review Panelist, National Science Foundation, Rensselaer Polytechnic University NSEC
- Search Committee, Assistant to the Vice-President of Research, University of Minnesota, 2004
- Session organizer and chair, final report team, NIH NIDDK 2006 Urolithiasis Symposium, 2006
- Session organizer and chair, panel leader for “Solid-State Chemistry Across the Disciplines”, NSF Solid State Chemistry Workshop, Northwestern University; Member, final report team
- Board of Electors, Department of Chemistry, Cambridge University (UK), 2007
- Chair, Department of Chemistry External Review Committee, Georgia Institute of Technology, 2008
- Planning Committee, New York Academy of Sciences Soft Materials Discussion Group, 2007
- Committee of Visitors (COV), National Science Foundation, Education and Human Resources, 2007
- Committee of Visitors (COV), DOE, Basic Energy Sciences, 2009
- University of Texas at Austin pre-MRSEC reviewer, 2009-10.

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- External Advisory Board, University of Wisconsin MRSEC, 2012 – 2018
- External Advisory Board, Duke University MRSEC, 2014-2017
- Advisory Board Member, Xavier University of Louisiana, 2010-2015
- NSF Review Panel, Division of Chemistry, Materials Research Infrastructure Program, 2015
- NSF Review Panel, Designing Materials to Revolutionize and Engineer our Future (DMREF) Solid State Chemistry (SSC), 2015
- National Academy of Sciences, National Research Council Center-Scale Engineering Research Study Committee, November 2015
- NSF Review Panel, DMR Solid State Chemistry and Materials, 2016
- External Advisory Board, Carnegie Mellon University, MRSEC Proposal, 2016
- External Advisory Board, South Carolina EPSCOR 2016-present
- External Advisory Board, University of Pittsburgh, MRSEC Proposal, 2016
- Advisory Board, Center for Hierarchical Materials Design, Northwestern University, 2017-present
- NSF Review Panel, DMR Solid State Chemistry and Materials, 2018
- Chair, External Advisory Board, Department of Chemical Engineering & Materials Science, Stevens Institute of Technology, 2018
- Chair, Advisory Board, University of Leeds, UK, Engineering & Physical Sciences Research Council, 2017-present
- Co-organizer, Annual Virtual Symposium on Solid-State Chemistry (VS<sup>3</sup>OC)
- Co-organizer, Bimonthly Organic Solid-State symposium (BOSSs, virtual)

### **Publications**

1. Silica-Supported Zirconium Hydrides as Isomerization or Hydrogenation Catalysts, J. Schwartz and M. D. Ward, *J. Mol. Catal.*, **8**, 465, **1980**.
2. Synthesis and Partial Characterization of (Silica)rhodium Dihydrides: A New Catalyst for Olefin Hydrogenation, M. D. Ward, T. V. Harris, J. Schwartz, *J. Chem. Soc. Chem. Comm.*, 357, **1980**.
3. Catalytically Active Metal Oxide-Supported Rhodium Hydride Complexes, M. D. Ward and J. Schwartz, *J. Mol. Catal.*, **11**, 397, **1981**.
4. Silica-Bound Rhodium Hydride Catalysts for Arene Hydrogenation, M. D. Ward and J. Schwartz, *J. Am. Chem. Soc.*, **103**, 5253, **1981**.
5. Characterization of Semiconductor Powders by Electrochemical Techniques, A. J. Bard, R. Pruiksma, J. R. White, W. Dunn and M. D. Ward, *Proceeding of the 160<sup>th</sup> Meeting of the Electrochem. Soc.*, **1981**.
6. Electrophilic Chemistry of Oxide-Supported Rhodium Complexes. Activation of H-H and Alkane C-H Bonds, Ward, M. D. and J. Schwartz, *Organometallics*, **1**, 1030, **1982**.
7. Photocurrent Enhancement via Trapping of Photogenerated Electrons of TiO<sub>2</sub> Particles, M. D. Ward and A. J. Bard, *J. Phys. Chem.*, **86**, 3599, **1982**.
8. Electrochemical Investigation of the Energetics of Particulate Titanium Dioxide Photocatalysts. The Methyl Viologen-Acetate System, M. D. Ward, J. R. White, A. J. Bard, *J. Amer. Chem. Soc.*, **105**, 27, **1983**.
9. Photocatalytic Alcohol Dehydrogenation Using Ammonium Heptamolybdate, M. D. Ward, J. F. Brazdil, R. K. Grasselli, *J. Phys. Chem.* **88**, 4210, **1984**.
10. Electrocrystallization of Poorly Conducting Charge-Transfer Complexes, M. D. Ward, *Inorg. Chem.*, **25**, 4444, **1986**.
11. Linear Chain Organometallic Donor-Acceptor Complexes and One-Dimensional Alloys. Synthesis and Structure of [(η<sup>6</sup>-C<sub>6</sub>Me<sub>3</sub>H<sub>3</sub>)<sub>2</sub>M][C<sub>6</sub>(CN)<sub>6</sub>] (M=Fe, Ru), M. D. Ward, *Organometallics*, **6**, 754, **1987**.
12. Characterization of the Charge Transfer Reaction Between Decamethylferrocene and 7,7,8,8-Tetracyanoquinodimethane(1:1). The 57Fe Mossbauer Spectra and Structures of the Paramagnetic, Dimeric and Metamagnetic One-Dimensional Salts and the Molecular and Electronic Structures of [TCNQ]<sub>n</sub> (n=0, 1-, 2), J.S. Miller, J. H. Zhang, W. M. Reiff, D. A. Dixon, L. D. Preston, A. H. Reis, Jr., E. Gebert, M. Extine, J. Troup, A. J. Epstein and M. D. Ward, *J. Phys. Chem.*, **91**, 4344, **1987**.
13. Investigation of Electron Transfer Processes at Open Circuit Polyvinylferrocene Films Using Rotating Ring-Disk Electrodes, M. D. Ward, *J. Electroanal. Interfac. Chem.*, **236**, 139, **1987**.
14. Methane Photoactivation on Copper Molybdate. An Experimental and Theoretical Study. M. D. Ward, J. F. Brazdil, S. P. Mehandru and A. B. Anderson, *J. Phys. Chem.*, **91**, 6515, **1987**.
15. Electrocrystallization, Structural and Physical Properties of Charge Transfer Complexes Derived From [(η<sup>6</sup>-C<sub>6</sub>Me<sub>6</sub>)<sub>2</sub>M]<sup>2+</sup> (M=Fe,Ru) and TCNQ (TCNQ = tetracyanoquinodimethane). M. D. Ward and D. C. Johnson, *Inorg. Chem.* **26**, 4213, **1987**.
16. Investigation of Open Circuit Reactions of Polymer Films Using the Quartz Crystal Microbalance. Reactions of

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- Polyvinylferrocene Films., M. D. Ward, *J. Phys. Chem.*, **92**, 2049, **1988**.
17. Ion Exchange of Ferro(ferricyanide) into Polyvinylferrocene Films, *J. Electrochem. Soc.*, M. D. Ward, **135**, 2747, **1988**.
  18. Synthesis and Unusual Properties of a Helically Twisted Metallated Rubrene Derivative, P. J. Fagan, M. D. Ward, J. V. Caspar, J. C. Calabrese and P. J. Krusic, *J. Amer. Chem. Soc.*, **110**, 2981, **1988**.
  19. Amplified Mass Immunosorbent Assay with a Quartz Crystal Microbalance, R. C. Ebersole and M. D. Ward, *J. Amer. Chem. Soc.*, **110**, 8623, **1988**.
  20. Electrochemical Aspects of Low-Dimensional Molecular Solids, *Electroanal. Chem.*, Vol 16, A. J. Bard, Ed., **16**, 161, **1988**.
  21. Electrocrystallization of Low Dimensional Solids: Directed Selectivity and Investigation of Crystal Growth with the Quartz Crystal Microbalance, M. D. Ward, *Synthetic Metals*, **27**, B211-B218, **1988**.
  22. Organometallic Donor-Acceptor Complexes with Non-Planar Donors: The Zig-Zag Linear Chain Complex  $[(\eta^6\text{-C}_6\text{Me}_6)_2\text{M}][\text{iso-C}_4(\text{CN})_6]$  (M=Fe, Ru). M. D. Ward and J. C. Calabrese, *Organometallics*, **8**, 593, **1989**.
  23. Electrostatic Structural Enforcement in Low Dimensional Solids: Synthesis, Structure and Electronic Properties of Polycationic Ruthenium Complexes with Polycyanoanions. M. D. Ward, P. J. Fagan, J. C. Calabrese and D. C. Johnson, *J. Amer. Chem. Soc.*, **111**, 1719, **1989**.
  24. Molecular Engineering of Solid State Materials: Organometallic Building Blocks, P. J. Fagan, M. D. Ward, and J. C. Calabrese, *J. Amer. Chem. Soc.*, **111**, 1698, **1989**.
  25. Single Crystal EPR Spectra of Triplet Excitons in  $[(\eta^5\text{-C}_5\text{Me}_5)\text{Ru}(\eta^6, \eta^6\text{-[22]})(1,4\text{-cyclophane})\text{Ru}(\eta^5\text{-C}_5\text{Me}_5)][\text{TCNQ}]_4$ , J. R. Morton, K. F. Preston, M. D. Ward and P. J. Fagan, *J. Chem. Phys.*, **90**, 2148, **1989**.
  26. Probing Electrocrystallization of Charge Transfer Salts with the Quartz Crystal Microbalance, *J. Electroanal. Chem.*, **273**, 79, **1989**.
  27.  $^{57}\text{Fe}$  Mossbauer Spectroscopy Studies of New Examples of Fully Averaged Mixed Valence Diiron and Iron/Ruthenium Compounds, W. M. Reiff, J. M. Manriquez, M. D. Ward and J. S. Miller, *Mol. Cryst. Liq. Cryst.* **176**, 423, **1989**.
  28. Magnetic Coupling Relationships for Bis(Metallocene)-Benzene Complexes, J. M. Manriquez, M. D. Ward, J. C. Calabrese, P. J. Fagan, A. J. Epstein and J. S. Miller, *Mol. Cryst. Liq. Cryst.* **176**, 527, **1989**.
  29. Hexaazaocatacahydrocoronene, HOC. Structural and Physical Properties of  $[\text{HOC}]_n$  (n = 0, 1+, 2+, 3+, 4+), J. S. Miller, D. A. Dixon, J. C. Calabrese, C. Vazquez, P. J. Krusic, M. D. Ward and R. L. Harlow, *J. Amer. Chem. Soc.*, **112**, 381, **1990**.
  30. Structural and Magnetic Characterization of Electron Transfer Salts of Tris(dicyanomethylene)cyclopropanide,  $\text{C}_3[\text{C}(\text{CN})_2]_3^-$ , and  $\text{Fe}(\text{C}_5\text{Me}_5)_2^+$  (1:1; Two Phases) and  $\text{Fe}(\text{C}_6\text{H}_3\text{Me}_3)_2^+$  (1:2), Evidence for 1-D Antiferromagnetic Behavior in Segregated  $[\text{Fe}(\text{C}_5\text{Me}_5)_2^+]_n$  Chains. J. S. Miller, M. D. Ward, J. H. Zhang and W. M. Reiff, *Inorg. Chem.*, **29**, 4063, **1990**.
  31. Single-Crystal EPR Study of Triplet Excitons in  $[\text{Fe}(\text{mesitylene})_2^+][\text{C}_3[\text{C}(\text{CN})_2]_3^-]_2$ , J. R. Morton, K. F. Preston, Y. Le Page, A. J. Williams and M. D. Ward, *J. Chem. Phys.*, **93**, 2222, **1990**.
  32. Molecular Control of Self-Assembled Monolayer Films of Imidazole-2 Thiones: Adsorption and Reactivity, A. J. Arduengo, J. R. Moran and M. D. Ward, *J. Amer. Chem. Soc.*, **112**, 6153, **1990**.
  33. Spontaneously Formed Functionally Active Avidin Monolayers on Metal Surfaces: A Strategy for Immobilizing Biological Reagents and Design of Piezoelectric Biosensors, R. C. Ebersole, J. R. Moran and M. D. Ward, *J. Amer. Chem. Soc.*, **112**, 3239, **1990**.
  34. Electrochemical and Quartz Crystal Microbalance Evidence for Mediation and Direct Electrochemical Reactions of Small Molecules at Tetrathiafulvalene-tetracyanoquinodimethane (TTF-TCNQ) Electrodes, M. S. Freund, A. Brajter-Toth and M. D. Ward, *J. Electroanal. Chem.*, **289**, 127, **1990**.
  35. Low Dimensional Organometallic Charge Transfer Complexes. X-Ray Structure and Magnetic Properties of  $\alpha$ - and  $\beta$ - $[\text{Cr}(\text{C}_6\text{Me}_3\text{H}_3)_2^+][\text{TCNQ}]^-$ , D. O'Hare, M. D. Ward and J. S. Miller, *Chemistry of Materials*, **2**, 758, **1990**.
  36. In-situ Interfacial Mass Measurements with Piezoelectric Transducers: Fundamentals and Applications, M. D. Ward and D. A. Buttry, *Science*, **249**, 1000, **1990**.
  37. Building Molecular Crystals, P. J. Fagan and M. D. Ward, *Scientific American*, July 1992.
  38. Oxidation Chemistry of d0 Transition Metal Complexes, M. J. Burk, W. A. Tumas, M. D. Ward and D. R. Wheeler, *J. Amer. Chem. Soc.*, **112**, 6133, **1990**.
  39. Redox-Active Polymers by Group Transfer Polymerization: Physical, Electrochemical and Electronic Properties, A. Laschewsky and M. D. Ward, *Polymer*, **32**, 146, **1991**.
  40. Radial Sensitivity of the Quartz Crystal Microbalance in Liquid Media, M. D. Ward and E. J. Delawski, *Anal. Chem.*, **1991**, **63**, 886.
  41. Piezoelectric Cell Growth Sensor, R. C. Ebersole, R. P. Foss and M. D. Ward, *Bio/Technology*, **1991**, **9**, 450.
  42. Electrocrystallization of Low-Dimensional Molecular Solids, M. D. Ward, *Supramolecular Architecture*, *ACS*

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*Symposium Series 499*, p231, **1992**.

43. Self-assembly Principles in Molecular Crystals, M. D. Ward, *Pure and Applied Chemistry (Proceedings of the 7<sup>th</sup> ICSCS)*, **1992**, 64, 1623.
44. Measurement of Interfacial Processes at Electrode Surfaces with the Electrochemical Quartz Crystal Microbalance, *Chemical Reviews* (invited review), D. A. Buttry and M. D. Ward, **1992**, 92, 1355.
45. Scanning electrochemical mass sensitivity mapping of the quartz crystal microbalance in liquid media, A. C. Hillier and M. D. Ward, *Anal. Chem.* **1992**, 64, 2539.
46. Scanning Tunneling Microscopy of the Organic Conductor (TMTSF)<sub>2</sub>X (X = ClO<sub>4</sub><sup>-</sup>, ReO<sub>4</sub><sup>-</sup>), S. Li, H. S. White and M. D. Ward, *J. Phys. Chem.* **1992**, 96, 9014.
47. Scanning Tunneling Microscopy of the Organic Semiconductor [(η<sup>5</sup>-C<sub>5</sub>Me<sub>5</sub>)<sub>2</sub>Ru(η<sup>6</sup>,η<sup>6</sup>-[22] (1,4) cyclophane)] [TCNQ]<sub>4</sub>, S. Li, H. S. White and M. D. Ward, *Chem. Mater.* **1992**, 4, 1082.
48. Self-assembled Thiol Monolayers with Carboxylic Acid Functionality: Measuring pH-Dependent Phase Transitions with the Quartz Crystal Microbalance, J. Wang, L. M. Frostman and M. D. Ward, *J. Phys. Chem.* **1992**, 96, 5224.
49. Piezoelectric pH Sensors: AT-cut Quartz Resonators with Amphoteric Polymer Films, J. Wang, M. D. Ward, R. C. Ebersole and R. A. Foss, *Analytical Chemistry*, **1993**, 65, 2553.
50. Real-time Measurement of Anchorage-Dependent Cell Adhesion Using a Quartz Crystal Microbalance, D. Gryte, M. D. Ward and W.-S. Hu, *Biotechnol. Prog.* **1993**, 9, 105.
51. Scanning Tunneling Microscopy Studies of Organic Conductors, S. Li, H. S. White and M. D. Ward, *Synthetic Metals*, **1993**, 55-57, 426.
52. Operation of an Ultrasensitive 30 MHz Quartz Crystal Microbalance in Liquids, Z. Lin, C. M. Yip, I. S. Joseph and M. D. Ward, *Analytical Chemistry*, **1993**, 65, 1646.
53. Synthesis and Properties of Optically Active Helical Metallocene Oligomers, T. J. Katz, A. Sudhakar, M.F. Teasley, A. M. Gilbert, W. E. Geiger, M. P. Robben, M. Wuensch and M. D. Ward, *J. Amer. Chem. Soc.* **1993**, 115, 3182.
54. Topographically Directed Nucleation of Organic Crystals on Molecular Single Crystal Substrates, P. W. Carter and M. D. Ward, *J. Amer. Chem. Soc.*, **1993**, 115, 11521.
55. Molecular Single Crystal Interfaces: Topographical Structure and Crystal Growth, P. W. Carter, A. C. Hillier and M. D. Ward, *Mol. Crystal. Liq. Cryst.* (Proceedings of ICCOSS XI), **1994**, 242, 53.
56. Depletion Layer Effects on the Response of the Electrochemical Quartz Crystal Microbalance, W.-W. Lee, H. S. White and M. D. Ward, *Anal. Chem.*, **1993**, 65, 3232.
57. Nucleation and Growth of Molecular Crystals on Molecular Interfaces, P. W. Carter, L. M. Frostman, A. C. Hillier, and M. D. Ward, ACS Symposium Series, **1994**, 561
58. Nanoscale Surface Topography and Growth of Molecular Crystals: The Role of Anisotropic Intermolecular Bonding, A. Hillier, P. W. Carter and M. D. Ward, *J. Amer. Chem. Soc.*, **1994**, 116, 944.
59. Self-Assembled Monolayers with Charge-Transfer Groups: 16-Mercaptohexadecyl Tetrathiafulvalene Carboxylate on Gold, C. M. Yip and M. D. Ward, *Langmuir*, **1994**, 10, 549.
60. Nucleation and Growth of Molecular Crystals on Self-Assembled Monolayers, L. M. Frostman and M. D. Ward, *Langmuir*, **1994**, 10, 576.
61. Directing Polymorph Selectivity During Nucleation of Anthranilic Acid on Molecular Substrates, P. W. Carter and M. D. Ward, *J. Amer. Chem. Soc.*, **1994**, 116, 769.
62. Atomic Force Microscopy of the Electrochemical Nucleation and Growth of Molecular Crystals, A. Hillier and M. D. Ward, *Science*, **1994**, 268, 1261.
63. Snapshots of Crystal Growth: Nanoclusters of Organic Conductors on Au(111) Surfaces, J. Hossick Schott and M. D. Ward, *J. Amer. Chem. Soc.*, **1994**, 116, 6806.
64. Layered Materials by Molecular Design: Structural Enforcement by Hydrogen Bonding in Guanidinium Alkyl and Aryl Sulfonates, V. A. Russell, M. C. Etter and M. D. Ward, *J. Am. Chem. Soc.*, **1994**, 116, 1941.
65. Scanning Tunneling Microscopy of Layered Molecular Conductors, M. A. Dvorak and M. D. Ward, *Chemistry of Materials*, **1994**, 6, 1386.
66. Guanidinium para-Substituted Benzenesulfonates: Competitive Hydrogen Bonding in Layered Structures and the Design of Nonlinear Optical Materials, V. A. Russell, M. C. Etter and M. D. Ward, *Chemistry of Materials*, **1994**, 6, 1206.
67. Determination of Wetting Velocities of Surfactant Superspreaders with the Quartz Crystal Microbalance, Z. Lin, R. M. Hill, H. T. Davis, and M. D. Ward, *Langmuir*, **1994**, 10, 4060.
68. Electrocrystallization of an Ordered Organic Monolayer: Selective Epitaxial Growth of β-(ET)<sub>2</sub>I<sub>3</sub> on Graphite, A. C. Hillier, J. B. Maxson and M. D. Ward, *Chem. Mater.* **1994**, 6, 2222.
69. Nanoscale Imaging of Molecular Adsorption, H. Cai, A. C. Hillier, K. Franklin, C. C. Nunn, and M. D. Ward, *Science*, **1994**, 266, 1551.

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70. Principles and Applications of the Electrochemical Quartz Crystal Microbalance, M. D. Ward, *Monographs in Electroanalytical Chemistry and Electrochemistry: Physical Electrochemistry, Principles, Methods, and Applications*, I. Rubinstein, Ed., **1995**, Marcel Dekker, New York.
71. Self-Assembly of Low-Dimensional Molecular Nanoclusters on Au(111) Surfaces, J. Hossick Schott and M. D. Ward, *Langmuir*, **1995**, *11*, 177.
72. Molecular Engineering of Crystals by Electrostatic Templating, P. J. Fagan and M. D. Ward, *Perspectives In Supramolecular Chemistry*, G. R. Desiraju, Ed., John Wiley, New York, **1995**.
73. The Role of Longitudinal Waves in Quartz Crystal Microbalance Applications in Liquids, Z. Lin and M. D. Ward, *Anal. Chem.*, **1995**, *67*, 685.
74. Molecular Nanoclusters as Precursors to Conductive Thin Films and Crystals, A. C. Hillier, J. Hossick Schott, and M. D. Ward, *Advanced Materials (Research News)*, **1995**, *7*, 409.
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### Invited Talks

1. Brandeis University, November 1986, "Low Dimensional Organometallic Molecular Solids: Engineering of Solid State and Electronic Properties."
2. University of Oregon, January 1987, "Low Dimensional Organometallic Molecular Solids: Engineering of Solid State and Electronic Properties."
3. University of Texas at Austin, January 1987, "Low Dimensional Organometallic Molecular Solids: Engineering of Solid State an Electronic Properties."
4. American Chemical Society Meeting, Denver, April, 1987, "Structural Effects of Concantenated Donor Molecules in Low Dimensional Solids: Synthesis, Structural Characterization and Physical Properties of the  $[(\eta^5\text{-C}_5\text{Me}_5)\text{Ru}(\eta^6\text{-C}_6\text{Me}_6)][\text{TCNQ}]$  Polymorphs and  $[(\eta^5\text{-C}_5\text{Me}_5)\text{Ru}(2,2\text{-}4,4\text{-cyclophane})\text{Ru}(\eta^5\text{-C}_5\text{Me}_5)][\text{TCNQ}]_x$  ( $x=2,4$ )."
5. American Chemical Society Meeting, Denver, April, 1987, "Organometallic Donor-Acceptor Complexes with Non-Planar Constituents: The Zig-Zag Linear Chain Complex  $[(\eta^6\text{-C}_6\text{Me}_6)_2\text{M}][\text{iso-C}_4(\text{CN})_6]$  ( $\text{M}=\text{Fe}, \text{Ru}$ )."
6. University of Minnesota, 3M Lecturer, May, 1987, "Low Dimensional Organometallic Molecular Solids: Engineering of Solid State an Electronic Properties".

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7. Electrochemistry Gordon Conference, January, 1988, "Redox Processes at Polymer Films and the Quartz Crystal Microbalance".
8. IBM, Almaden Research Center, January 1988, "Measuring Polymer Reactions at Open Circuit with the RRDE and the Quartz Crystal Microbalance."
9. University of New Mexico, Albuquerque, January, 1988, "Low Dimensional Organometallic Molecular Solids: Structural Design and Unusual Donor-Acceptor Interactions."
10. Princeton University, May, 1988, "In Situ Gravimetric Studies of Interfacial Electrochemical and Biological Processes on Piezoelectric Crystals, Redox Reactions and Biosensors."
11. International Conference on Synthetic Metals, Santa Fe, NM, June, 1988, "Electrocrystallization of Low Dimensional Solids: Directed Selectivity and Investigation of Crystal Growth with the Quartz Crystal Microbalance."
12. AT&T Laboratories, Murray Hill, NJ, August, 1988, "In Situ Gravimetric Studies of Interfacial Electrochemical and Biological Processes on Piezoelectric Crystals."
13. American Chemical Society Meeting, Dallas, Spring 1989, Magnetic Coupling Relationships for Bis(metallocene)benzene Complexes, w/ J. M. Manriquez, J. C. Calabrese, P. J. Fagan, A. J. Epstein and J. S. Miller, poster session
14. University of Missouri, April 1989, "Control of Solid State Structure in Molecular Solids."
15. Midwest Organic Solid-State Chemistry Meeting, Minneapolis, MN, June 9 – 10, 1989- "Control of Solid State Structure in Molecular Materials."
16. Royal Society Meeting, Analytical Chemistry, Cambridge, UK, July 31-Aug 5, 1989- "Piezoelectric Detection of Biological Targets with the Quartz Crystal Microbalance."
17. Oxford University, UK, Aug 10-11, 1989- "In-situ Mass Measurements with the Quartz Crystal Microbalance."
18. Pennsylvania State University, October 25, 1989, "Piezoelectric Detection of Biological Targets with the Quartz Crystal Microbalance."
19. Foresight Conference on Nanotechnology, October 27 – 29, 1989, "Control of solid state structure in molecular materials by electrostatic self-assembly."
20. Electrochemistry Gordon Conference, January 1990, Ventura, CA, "In-situ Mass Measurements with the Quartz Crystal Microbalance."
21. EPSCOR Electrochemistry Conference, February 9,10, La Palguera, Puerto Rico, "In-situ Mass Measurements with the Quartz Crystal Microbalance."
22. OCRI Electronic Materials Conference, February 15, 1990, Ottawa, Canada, "Control of Solid State Structure in Molecular Materials."
23. Analytical Biosensors Gordon Conference, March 1990, Ventura, CA, "Piezoelectric Biosensing with the Quartz Crystal Microbalance."
24. Electrochemical Society Meeting, May 1990, Montreal, Canada, "Oxidation Chemistry of d0 Transition Metal Complexes."
25. Case Western Reserve University, Cleveland, OH, November 29, 1990, "Probing Interfacial Mass Changes with the Quartz Crystal Microbalance."
26. National Academy of Sciences Workshop on Oceanographic Sensors, Irvine, CA, January 7-8, 1991- "Piezoelectric Mass Sensors."
27. Chicago Section ACS Monthly Meeting, Chicago, IL, February 22, 1991, "Piezoelectric Mass Sensors."
28. Pittsburgh Conference, Reilly Award Symposium, Chicago, IL, March 6, 1991, "In-situ determination of the Radial Mass Sensitivity of the Quartz Crystal Microbalance."
29. American Chemical Society Meeting, Atlanta, Spring 1991, "In-situ determination of the Radial Mass Sensitivity of the Quartz Crystal Microbalance."
30. American Chemical Society Meeting, Atlanta, Spring 1991, "Electrocrystallization of Low-Dimensional Molecular Solids."
31. 7<sup>th</sup> International ICSCS Meeting, Compiègne, France, July, 1991, "Self-assembly principles in crystallization of molecular crystals."
32. University of Minnesota (Chemistry Dept.), October 11, 1991, "Probing Interfacial Mass Changes with the Quartz Crystal Microbalance."
33. ONR Biocorrosion Workshop, November 1-2, 1991, "New Directions for Characterization and Analysis of Microbiologically Induced Corrosion."
34. University of Minnesota (Chemistry Dept.), November 26, 1991, "Crystallization of Molecular Materials."
35. Central Research & Development Department, E. I. duPont de Nemours & Co., April 22, 1992, "Molecular Interfaces: Scanning Tunneling Microscopy and Piezoelectric Transducers."
36. California Institute of Technology, Merck Centennial Lecturer, June 4, 1992, "Molecular Interfaces: Properties, New Materials and Sensors."



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37. Seminar on Microfabrication and Biosensors, Anchorage, AL, July 22, 1992, "The role of radial sensitivity and viscoelastic effects in piezoelectric acoustic wave sensors."
38. Gordon Conference on Physical Electrochemistry, Colby-Sawyer College, New London, New Hampshire, Aug 7, 1992, "Electrocrystallization of 1-D Materials."
39. International Conference on Synthetic Metals, Goteburg, Sweden, August 18, 1992, "Scanning Tunneling Microscopy Studies of Organic Conductors."
40. American Chemical Society Meeting, Washington DC, August 25, 1992, "Scanning tunneling microscopy of the organic semiconductor  $[(\eta\text{-C}_5\text{Me}_5)_2\text{Ru}(1,4\text{-}22\text{-cyclophane})][\text{TCNQ}]_4$ ."
41. American Chemical Society Meeting, Washington DC, August 27, 1992, "Chemical and Mechanical Properties of Self-assembled monolayers."
42. Lawrence Livermore Laboratories, Livermore, CA, December 9, 1992, "Molecular Single Crystal Interfaces: Electronic Properties, Structure and Crystal Growth."
43. Sandia National Laboratories, Albuquerque, NM, December 10, 1992, "Properties and Applications of AT cut Quartz Resonators in the Liquid Phase: Interfacial Processes and Sensor Design"
44. University of New Mexico, Albuquerque, NM, December 11, 1992, "Molecular Single Crystal Interfaces: Electronic Properties, Structure and Crystal Growth."
45. University of Kentucky, Lexington, KY, February 15, 1993 (EPSCOR/NSF speaker program), "Interfacial Properties of Molecular Crystals: Molecular Level Imaging and Nucleation and Crystal Growth."
46. University of Kentucky, Lexington, KY, February 16, 1993, "Quartz Crystal Microbalance: Principles and Applications."
47. Princeton University, Department of Chemical Engineering, April 14, 1993, "Molecular Single Crystal Interfaces: Electronic Properties, Structure and Crystal Growth."
48. Unilever Corporation, Edgewater, NJ, April 15, 1993, "In-situ Characterization of Molecular Interfaces."
49. Electrochemical Society Meeting, Minneapolis Chapter, May 15, 1993, "Interfacial Investigations with the Quartz Crystal Microbalance."
50. Gordon Conference on Physical Organic Chemistry, Holderness School, Plymouth, NH, June 21, 1993, "Molecular Single Crystal Interfaces: Electronic Properties, Structure and Crystal Growth."
51. 11<sup>th</sup> International Conference on the Chemistry of the Organic Solid State, Jerusalem, ISRAEL, July 1993, "Molecular Single Crystal Interfaces: Electronic Properties, Structure and Crystal Growth."
52. Weizmann Institute, July 12, 1993, "Interfacial Investigations with the Quartz Crystal Microbalance."
53. Topographically Directed Growth of Organic Crystals on Molecular Single Crystal Substrates, P. W. Carter and M. D. Ward, *Symposium on Chemically Sensitive Interfaces*, 206<sup>th</sup> ACS meeting, Chicago, IL, August 1993.
54. *In-situ* Atomic Force Microscopy of the Electrochemical Growth and Dissolution of Conductive Charge- Transfer Salts, A. C. Hillier and M. D. Ward, *Symposium on Atomic and Molecular Views of the Electrode-Electrolyte Interface*, 206<sup>th</sup> ACS meeting, Chicago, IL, August 1993.
55. National Science Foundation Materials Chemistry Workshop, Albuquerque, New Mexico, November 21- 24, 1993, "Nucleation and Growth of Molecular Crystals on Molecular Interfaces."
56. University of California, San Diego, January 20, 1994, "Nanoscale Nucleation and Growth of Molecular Crystals on Molecular Interfaces."
57. University of Arizona, January 21, 1994, "Nanoscale Nucleation and Growth of Molecular Crystals on Molecular Interfaces."
58. University of California, Santa Barbara, January 26, 1994, "Nanoscale Nucleation and Growth of Molecular Crystals on Molecular Interfaces."
59. University of Oregon, Eugene, January 28, 1994, "Nanoscale Nucleation and Growth of Molecular Crystals on Molecular Interfaces."
60. Electrochemical Society Meeting, San Francisco, May 22, 1994, Atomic Force Microscopy of the Electrochemical Nucleation and Growth of Molecular Crystals."
61. Gordon Conference on Crystal Growth, Proctor Academy, New Hampshire, June 27, 1994- "Solution Growth of Organic Crystals."
62. Princeton University, Materials Chemistry Symposium, November 2, 1994, "Nucleation and Growth of Organic Crystals: Are Interfaces Important?"
63. Columbia University, November 1, 1994, "Nucleation and Growth of Organic Crystals: Are Interfaces Important?"
64. Texas A&M University, December 6, 1994, "Nucleation and Growth of Organic Crystals: Are Interfaces Important?"
65. University of Texas at Austin, December 8, 1994, "Nucleation and Growth of Organic Crystals: Are Interfaces Important?"
66. University of Utah, January 19, 1995, "Nucleation and Growth of Organic Crystals: Are Interfaces Important?"

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67. University of Utah, January 20, 1995, "Topological Similarities in Organic Crystals, Emulsions, and Block Copolymers."
68. South Dakota State University, EPSCOR Program, January 24, 1995, "Nucleation and Growth of Organic Crystals: Are Interfaces Important?"
69. Yale University, February 1, 1995, "Nucleation and Growth of Organic Crystals: Are Interfaces Important?"
70. University of Indiana, Bloomington, February 20, 1995, "Nucleation and Growth of Organic Crystals: Are Interfaces Important?"
71. Purdue University, West Lafayette, February 20, 1995, "Nucleation and Growth of Organic Crystals: Are Interfaces Important?"
72. Eli Lilly, Indianapolis, February 20, 1995, "Nucleation and Growth of Organic Crystals: Are Interfaces Important?"
73. University of North Carolina, April 19, 1995, "Nanoscale Nucleation and Growth of Organic Crystals"
74. Georgia Tech, April 20, 1995, "Nanoscale Nucleation and Growth of Organic Crystals"
75. University of Georgia, April 21, 1995, "Nanoscale Nucleation and Growth of Organic Crystals"
76. St. Olaf's University, April 28, 1995, "Nucleation and Growth of Organic Crystals"
77. European Conference on Molecular Electronic Materials, August 26 – 31, Mittelberg, Austria, Electrochemical Growth of Crystalline Organic Conductors: The Influence of Epitaxy and Commensurism on Film Properties
78. NATO Advanced Research Workshop on Modular Chemistry, September 9 – 12, Estes Park, Colorado, "Nucleation and Growth of Crystalline Organic Materials: Epitaxy and Visualization at that Nanoscale."
79. Universite Catholique, Louvain-la-Neuve, Belgium, October 10, 1995, "Nucleation and Growth of Crystalline Organic Materials: Epitaxy and Visualization at that Nanoscale"
80. Universite Louis Pasteur, Strasbourg, France, September 27, 1995, "Nucleation and Growth of Crystalline Organic Materials: Epitaxy and Visualization at that Nanoscale"
81. University of Stuttgart, Stuttgart, Germany, October 18, 1995, "Nucleation and Growth of Crystalline Organic Materials: Epitaxy and Visualization at that Nanoscale"
82. Universite Louis Pasteur, Strasbourg, France, November 10, 1995, "Modular Control of Crystal Architecture with Two-Dimensional Hydrogen-Bonded Assemblies"
83. Institute Charles Sadron, Strasbourg, France, November 14, 1995, "Nucleation and Growth of Crystalline Organic Materials: Epitaxy and Visualization at that Nanoscale"
84. MPI, Mainz, Germany, November 21, 1995, "Nucleation and Growth of Crystalline Organic Materials: Epitaxy and Visualization at that Nanoscale"
85. MPI, Mainz, Germany, November 21, 1995, "Modular Control of Crystal Architecture with Two Dimensional Hydrogen-Bonded Assemblies"
86. Universite Louis Pasteur, Strasbourg, France, December 6, 1995, "Structure and Symmetry in Condensed Matter: Common Features in Organic Crystals, Polymers and Surfactants"
87. California Institute of Technology, Pasadena, CA, January 29, 1996, "Nucleation and Growth of Crystalline Organic Materials: Epitaxy and Visualization at that Nanoscale"
88. University of California at Irvine, January 30, 1996, "Nucleation and Growth of Crystalline Organic Materials: Epitaxy and Visualization at that Nanoscale"
89. Pennsylvania State University, State College, PA, February 6, 1996, "Nucleation and Growth of Crystalline Organic Materials: Epitaxy and Visualization at that Nanoscale"
90. Lehigh University, Bethlehem, PA, February 7, 1996, "Nucleation and Growth of Crystalline Organic Materials: Epitaxy and Visualization at that Nanoscale"
91. University of Pennsylvania, Philadelphia, PA, February 12, 1996, "Quartz Crystal Microbalance: Principles and Methods"
92. E.I. 18uPont de Nemours, Central Research and Development, April 23, 1996, "Modular Control of Crystal Architecture with Two-Dimensional Hydrogen-Bonded Assemblies"
93. MRS meeting, Boston, MA, December 2, 1996, "Heteroepitaxial Growth of Molecular Films"
94. University of California at Santa Barbara, January 14, 1997, "Nanoporous Molecular Sandwiches" Pillared Two-Dimensional Hydrogen-Bonded Networks with Adjustable Porosity"
95. Universite' Louis Pasteur, March 27, 1997, "Self-Assembly of Crystalline Organic Materials: Epitaxy and Visualization at that Nanoscale"
96. Americal Chemical Society Symposium on Materials Chemistry, San Francisco, April 15, 1997, "Nanoporous Molecular Sandwiches" Pillared Two-Dimensional Hydrogen-Bonded Networks with Adjustable Porosity"
97. Cornell University, Ithaca, NY, September 18, 1997, "Nanoporous Molecular Sandwiches" Pillared Two-Dimensional Hydrogen-Bonded Networks with Adjustable Porosity"
98. Kraft Corporation, Tarrytown, NY, September 18, 1997, "Nanoporous Molecular Sandwiches: Pillared Two-Dimensional Hydrogen-Bonded Networks with Adjustable Porosity"

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99. Rohm & Haas Corporation, September 25, 1997, "Crystal Growth at the Molecular Level: Modification and Real-Time Visualization"
100. California Institute of Technology, October 16, 1997, "Pillared Hydrogen Bonded Networks with Adjustable Porosity: Molecular "Zeolite-like" Materials"
101. University of California, Los Angeles, October 17, 1997, "Electrochemically Driven Self-Assembly of Molecular Films"
102. School "Moderni Metodi Elettrochimici" Lectures, October 28 – 31, 1997, Padova, Italy, "Characterizing Electrodes and Electrochemical Processes at the Nanoscale with Atomic Force Microscopy" and "Fundamental Principles and Operation of the Electrochemical Quartz Crystal Microbalance"
103. NATO Advanced Research Workshop, Current Challenges of Large Supramolecular Assemblies, Athens, Greece, October 31 – November 5, "Crystal Engineering with Two-Dimensional Hydrogen Bonding Networks"
104. Fifth Chemical Congress of North America, Cancun, Mexico, November 11 – 15, 1997, "Nanoporous Molecular Sandwiches: Pillared Two-Dimensional Hydrogen-Bonded Networks with Adjustable Porosity"
105. Tufts University, February 10, 1998, "Electrochemical Growth of Epitaxial Molecular Films"
106. NIST, February 11, 1998, "Molecular Materials by Design: Clathrates with Predictable and Adjustable Architecture"
107. University of Illinois, April 21, 1998, "Crystal Engineering with Flexible 2-D Molecular Networks"
108. Hunter College, Twelfth Annual Symposium of the Center for Study of Gene Structure and Function, April 29, 1998, "Molecular Materials by Design: Programmed Assembly of Molecular Networks for Functional Solids"
109. Gordon Conference on Organic Structures and Properties, Fukuoka, Japan, September 4 – 10, 1998, "Predictable Architectures in Open Hydrogen-Bonded Frameworks"
110. University of Toledo, February 16, 1999, "Predictable Architectures in Open Hydrogen-Bonded Frameworks"
111. University of Akron, February 17, 1999, "Predictable Architectures in Open Hydrogen-Bonded Frameworks"
112. Case-Western Reserve University, February 18, 1999, "Controlling the Assembly of Crystalline Molecular Materials"
113. University of Dayton, February 19, 1999, "Pillared Hydrogen Bonded Networks with Adjustable Architecture and Porosity: Strategic Routes to New Materials"
114. Michigan State University, 13<sup>th</sup> Annual CFMR Symposium: Crystal Engineering: Research and Applications, March 14 – 15, 1999, "Crystal Engineering of Molecular Scaffolds: Design and Applications."
115. University of California, Berkeley, April 2, 1999, "Crystal Engineering of Molecular Scaffolds: Strategic Routes to New Materials and Applications"
116. University of California, Davis, April 1, 1999, "Crystal Engineering of Molecular Scaffolds: Strategic Routes to New Materials and Applications"
117. Institut le Bel, Universite' Louis Pasteur, *Professor Invite*, March April 14, 1999, "Epitaxial Molecular Organization on Solid Substrates."
118. Argonne National Laboratories, May 6, 1999, Pillared Hydrogen Bonded Networks with Adjustable Architecture and Porosity: Strategic Routes for New Materials and Chemical Separations."
119. IBM, Yorktown Heights, June 2, 1999, "Controlling the Assembly of Crystalline Molecular Materials."
120. Gordon Conference on Chemistry of Electronic Materials, July 4 – 8, New England College, Henniker, NH, "Epitaxial Molecular Organization on Soft Interfaces".
121. Institut le Bel, Universite' Louis Pasteur, *Professor Invite*, July 10, 1999, "Principles for Crystal Engineering and the Construction of Hydrogen Bonded Frameworks."
122. Gordon Conference on Supramolecular Assemblies, August 1 – 5, New England College, Henniker, NH, "Assembly of Flexible and Porous Hydrogen-Bonded Frameworks."
123. William Paterson College of New Jersey, November 19, 1999, "The Future of Materials Science: The Integration of Chemistry, Physics and Biology."
124. Heartland Materials Symposium, University of Southern Illinois, October 22-23, 1999, "Crystal Engineering with Soft Lattices."
125. Princeton University, January 6, 2000, "Crystal Engineering with Soft and Topologically Adaptable Lattices"
126. Gordon Conference on Electrochemistry, January 15-20, 2000, Ventura, CA, "Electrochemical Growth of Epitaxial Molecular Films."
127. Gustavas Adolphus University, February 16, 2000, "Scanning Probe Microscopy of Molecular Films and Protein Crystallization."
128. American Chemical Society, March 26 – 30, 2000, San Francisco, CA, J. S. Miller Materials Chemistry award Symposium, "Pillared hydrogen bonded networks with adjustable architecture and porosity: Strategic routes for new materials."
129. American Chemical Society, March 26 – 30, 2000, San Francisco, CA, Symposium on Physical Chemistry of Chirality, "Engineering of Polar Hydrogen-Bonded Lattices."

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130. American Chemical Society, March 26 – 30, 2000, San Francisco, CA, Symposium on New Approaches to Separations, “New Strategies for Molecular Separations with Hydrogen-Bonded Host Frameworks.”
131. Penn State, Hazleton, April, 2000, Mylar Giri Lecture, “Patterns of Assembly: From Molecules to Crystals.”
132. University of Texas, Austin, Department of Chemistry, January 25, 2001, “Engineering Topology and Metrics in Flexible Hydrogen-bonded Inclusion Frameworks”
133. Texas A&M, Department of Chemical Engineering, Lindsay Lecture, January 26, 2001, “Engineering Topology and Metrics in Flexible Hydrogen-bonded Inclusion Frameworks”
134. Marvel Symposium, University of Arizona, March 11-13, 2001, “Engineering Topology and Metrics in Flexible Hydrogen-bonded Inclusion Frameworks”
135. University of Toronto, Department of Chemical Engineering, February 28, 2001, “Engineering Topology, Porosity, and Metrics in Flexible Hydrogen-bonded Molecular Frameworks”
136. Georgia Institute of Technology, Department of Chemistry, March 21, 2001, “Visualizing Molecular Assembly at Crystal Interfaces with Atomic Force Microscopy”
137. Georgia Institute of Technology, Molecular Design Institute Lecture, March 22, 2001, “Topology and Metrics in Flexible Hydrogen-bonded Inclusion Frameworks: de novo Crystal Design”
138. Weizmann Institute, Meir Lahav 65<sup>th</sup> Birthday Symposium on Supramolecular Architectures, April 1, 2001, “Crystal Growth Interfaces: From Dynamics to Structure”
139. Weizmann Institute, Minerva Symposium on Molecular, Interfacial, and Biological Aspects of Mesostructures, “Engineering Topology, Porosity, and Metrics in Flexible Hydrogen-bonded Molecular Frameworks”
140. University of California, Berkeley, April 18, 2001, “Engineering Topology and Metrics in Self-assembled Molecular Frameworks”
141. ICCOSS XV, Mainz, Germany, July 26, 2001. “Crystal Growth Interfaces: From Dynamics to Structure”
142. Northwestern University, October 16, 2001, “Engineering Topology and Metrics in Self-assembled Host Frameworks”
143. University of British Columbia, Vancouver, February 5, 2002, 3M Award Lecture, “Building Crystal Houses.”
144. Simon Fraser University, Vancouver, February 6, 2002, “Building Crystal Houses.”
145. Clemson University, Clemson, SC, March 8, 2002, “Crystal Design and Engineering of Molecular Frameworks”
146. American Chemical Society Meeting, Orlando, April 8, 2002, “Selective Nucleation and Discovery of Organic Polymorphs” (invited)
147. Schering-Plough, Cranford, NJ, April 11, 2002, “Crystal Growth of Proteins and Small Molecule Organics: Visualization and Controlled Nucleation”
148. Great Lakes Regional Meeting, Minneapolis, MN, June 4, 2002, “Crystal Design and Engineering of Molecular Frameworks”
149. Pennsylvania State University, University Park, August 27, 2002, “Engineering Topology and Metrics in Selfassembled Molecular Frameworks”
150. University of Michigan, Ann Arbor, MI, September 4, 2002, “Engineering Topology and Metrics in Selfassembled Molecular Frameworks”
151. Aminoff Symposium, Swedish Academy of Sciences, Stockholm, Sweden, September 12, 2002, “Crystal Growth Interfaces: Visualization and Controlled Nucleation”
152. University of Wisconsin, Madison, WI, October 1, 2002, “Engineering Topology and Metrics in Selfassembled Molecular Frameworks”
153. University of Virginia, Charlottesville, VA, October 3, 2002, “Engineering Topology and Metrics in Selfassembled Molecular Frameworks”
154. American Association of Pharmaceutical Scientists, Annual Meeting, Toronto, Canada, November 12, 2002, “Epitaxial Routes to Controlled Nucleation and Screening of Polymorphs”
155. American Chemical Society, Southeast Regional Meeting, Charleston, SC, November 14, 2002, “Crystal Interfaces”
156. Pohang University, Pohang, Korea, December 20, 2002, “Building Organic Crystals through Molecular Design”
157. Brain Korea-21 International Symposium on Nanostructures, Seoul National University, December 21, 2002, “Building Organic Crystals through Molecular Design”
158. University of Notre Dame, Notre Dame, IN, January 27, 2003, “Building Organic Crystals through Molecular Design”
159. University of Colorado, Boulder, CO, January 28, 2003, “Building Organic Crystals through Molecular Design”
160. ProSpectives ACS Conference on Polymorphism, Tampa, FL, February 24, 2003, “Interface Engineering for Controlled Nucleation and Crystallization”
161. ACS Colloid Division Nucleation Symposium, June 16-17, Georgia Tech, Atlanta, GA, “Epitaxial Nucleation of Organic Crystals”
162. 3M Corporation, July 21, 2003, “Organic Thin Film Epitaxy”

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163. Crystal Growth of Organic Materials VI Conference (CGOM-6), August 17-22, Glasgow, Scotland, "Probing Crystal Interfaces and Crystal Growth with Atomic Force Microscopy"
164. Arizona State University, October 21, 2003, "Engineering Crystal Architecture through Molecular Design"
165. Eli Lilly Company, October 23, 2003, "Crystal Interfaces and Crystallization"
166. University of Wisconsin, Milwaukee, October 27, 2003, "Engineering Crystal Architecture through Molecular Design"
167. Medical College of Wisconsin, October 28, 2003, "Probing Kidney Stone Formation Processes with Atomic Force Microscopy"
168. National Science Foundation Workshop on Reticular Chemistry, November 20-23, 2003, "Hydrogen-bonded networks in organic crystals, architectural isomerism, and symmetry transcending length scale"
169. Allen J. Bard 70<sup>th</sup> Anniversary Symposium, December 19-21, 2003, "Probing Crystal Growth with Atomic Force Microscopy"
170. University of North Carolina, February 10, 2004, "Engineering Crystal Architecture through Molecular Design"
171. University of Florida, March 1, 2004, "Engineering Crystal Architecture through Molecular Design"
172. ACS Meeting, Anaheim, CA, March 24, 2004, "Adhesion at Calcium Oxalate Crystal Surfaces: Probing Kidney Stone Formation Processes with Atomic Force Microscopy"
173. 30<sup>th</sup> School of Crystallography, Erice, Sicily, June 9 – 21, 2004, Lectures on "Polymorphism and Structure-Property Relationships"
174. ACA Meeting, Chicago, IL, July 20, 2004, "Engineering Crystal Architecture Through Molecular Design: Applications of Supramolecular Assembly"
175. *Crystal Engineering Faraday Discussion 2004: New Trends in Crystal Engineering*, Nottingham UK, September, 8-10, 2004, Keynote Lecture, "Structure and Order in Soft Matter: Symmetry Transcending Length Scale"
176. Gordon Research Conference, Organic Structures and Properties, Les Diablerets, Switzerland, October 10 -16, 2004, "Hydrogen Bonding Networks: Topology, Structure Prediction, and Length Scales"
177. COST Chemistry Action: Organising Non-Covalent Chemical Systems with Selected Functions, Prague, November 5 – 6, 2004, Plenary Lecture, "Architectural Diversity in Crystalline Hydrogen-bonded Supramolecular Networks"
178. Case Western Reserve University, November 18, 2004, "Molecular Recognition at Crystal Surfaces: Crystal Growth, Adhesion, and Kidney Stones"
179. Illinois Institute of Technology, Chicago, IL, December 1, 2004, "Crystallization and Interfaces: A Microscopic View of Crystal Nucleation and Growth"
180. University of Chicago, Chicago, IL, December 2, 2004, "Programmed Assembly of Crystalline Hydrogenbonded Frameworks: Architectural Diversity and Soft Building Blocks"
181. Carnegie Mellon University, Pittsburgh, PA, December 10, 2004, "Molecular Recognition at Crystal Surfaces: Crystal Growth, Adhesion, and Kidney Stones".
182. University of California, Los Angeles, January 19, 2005, "Programmed Assembly of Crystalline Hydrogenbonded Frameworks: Architectural Diversity and Soft Building Blocks."
183. University of California, Santa Barbara, February 3, 2005, "Programmed Assembly of Crystalline Hydrogenbonded Frameworks: Architectural Diversity and Soft Building Blocks."
184. New York University, New York City, NY, March 1, 2005, "Diversity Among Similarity: Programmed Assembly of Organic Solid State Frameworks"
185. New York University, New York City, NY, March 2, 2005, "Probing Crystal Interfaces at the Nanoscale: From Crystal Growth to Kidney Stones"
186. University of Pennsylvania, Philadelphia, March 4, 2005, "Crystals Inside and Out: From Soft Crystals to Kidney Stones."
187. Princeton University, Princeton, March 23, 2005, "Regulating Crystallization at the Nanoscale."
188. MIT, Boston, April 1, "Programmed Assembly of Crystalline Hydrogen-bonded Frameworks: Architectural Diversity and Soft Building Blocks."
189. Princeton University, FMC Lecture, April 4, "Programmed Assembly of Crystalline Hydrogen-bonded Frameworks: Architectural Diversity and Soft Building Blocks"
190. Princeton University, FMC Lecture, April 5, "Probing Crystal Interfaces at the Nanoscale: From Crystal Growth to Kidney Stones"
191. Universite' Louis Pasteur, April 22, 2005, "Diversity Among Similarity: Programmed Assembly of Organic Solid State Frameworks."
192. Universite' Louis Pasteur, April 28, 2005, "Regulating Crystallization at the Nanoscale."
193. Gordon Conference, Thin Film and Crystal Growth Mechanisms, Mount Holyoke College, June 26, 2005, "Probing crystallization and adhesion at crystal surfaces with atomic force microscopy"

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194. ICCOSS XVII, UCLA, July 25, 2005, "Probing Crystal Interfaces at the Nanoscale: From Crystal Growth to Kidney Stones"
195. Cornell University, Ithaca, NY, November 10, 2005, "Probing Crystal Interfaces at the Nanoscale: From Crystal Growth to Kidney Stones"
196. University of Chicago, Chicago, IL, November 14, 2005, "Programmed Assembly of Crystalline Hydrogenbonded Frameworks: Architectural Diversity and Soft Building Blocks"
197. Pacificchem 2005, Honolulu, HI, December 15, 2005, Symposium on Science and Engineering of the Future with Multifunctional Conducting Molecular Materials, "Organic semiconductor architectures in field effect transistors"
198. Pacificchem 2005, Honolulu, HI, December 15, 2005, Symposium on Biomineralization and Bio-Inspired Chemistry, "Toward solving the mysteries of calcium oxalate kidney stone formation"
199. City College of New York, New York, NY, April 3, 2006, "Diversity Among Similarity: Programmed Assembly of Organic Solid State Frameworks."
200. Gordon Research Conference on Biomineralization, Colby-Sawyer College, New London, NH, July 30, 2006, "Unraveling Pathological (in vivo) Biomineralization"
201. Frontiers in Particle Science and Engineering, University of Leeds, Leeds, United Kingdom, September 6, 2006, "Exploring Crystal Growth and Aggregation at the Molecular Level."
202. University of Geneva, October 2, 2006, "Diversity Among Similarity: Programmed Assembly of Organic Solid State Frameworks."
203. University of Neuchatel, October 4, 2006, "From Organic Crystals to Soft Matter: Can Structure and Symmetry Transcend Length Scale?"
204. University of Bern, October 5, 2006, "Constructing Hydrogen-bonded Host Frameworks by Molecular Design."
205. University of Fribourg, "Crystal Design with Compliant 2D Hydrogen-bonded Networks: Universal Principles Revealed?"
206. University of Geneva, October 6, 2006, "Inorganic Solid State Chemistry and Pathological Biomineralization, and disease: Unraveling mysteries of kidney stone formation."
207. City University of New York, Hunter College, February 2, 2007, "Unraveling the Solid-State Chemistry of Pathological Biomineralization."
208. City University of New York, Queens College, February 26, 2007, "Diversity Among Similarity: Programmed Assembly of Organic Solid State Frameworks."
209. William Paterson University, October 4, 2007, "Unraveling the Solid-State Chemistry of Pathological Biomineralization."
210. Rutgers University, October 16, 2007: "Diversity Among Similarity: Programmed Assembly of Organic Solid State Frameworks."
211. New York University, Department of Biology, October 22, 2007, "Diversity Among Similarity: Programmed Assembly of Organic Solid State Frameworks."
212. Polytechnic University, October 25, 2007, "Diversity Among Similarity: Programmed Assembly of Organic Solid State Frameworks."
213. Hofstra University, November 7, 2007, "Unraveling the Solid-State Chemistry of Pathological Biomineralization."
214. New York University, 7<sup>th</sup> Annual Symposium of NYU Center for Genomics and Systems, May 30, 2008, "Pathological Crystals and Disease"
215. American Crystallographic Association Meeting, Knoxville, TN, June 3, 2008, "Architectural Diversity and Elastic Networks in Crystalline Materials."
216. University of South Carolina, Columbia, SC, October 24, 2008, Diversity Among Similarity: Programmed Assembly of Organic Solid State Frameworks."
217. American Association for Dental Research Nanosymposium, Ann Arbor, MI, December 3, 2008, "Unraveling Pathological Biomineralization at the Nanoscale. "Architectural Diversity and Elastic Networks in Hydrogen-bonded Host Frameworks: From Molecular Jaws to Cylinders to Capsules."
218. Rutgers University-Newark, April 9, 2009,
219. University of Tennessee, Knoxville, TN, April 24, 2009, "Architectural Diversity and Elastic Networks in Crystalline Materials."
220. University of Wisconsin, May 6, 2009, "Crystallization at the Nanoscale: Regulating Polymorphism and Other Curiosities."
221. Catalysis Club of Philadelphia, May 21, 2009, "Architectural Diversity and Elastic Networks in Hydrogen-bonded Host Frameworks: From Molecular Jaws to Cylinders to Capsules."
222. ACS-ICSCS Colloid Symposium: Dynamics at Interfaces, June 18, 2009, "Dynamics of Pathological Crystallization (Keynote)"

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223. Bidel Corporation, Danbury, CT, July 1, 2009, "Probing Crystal Interfaces at the Molecular Scale: Growth, Dissolution, and Adhesion."
224. University of Texas, Austin, September 23, 2009, "Crystallization at the Nanoscale: Regulating Polymorphism and Other Curiosities."
225. NERM, Nanotechnology Symposium, Hartford, CT, October 8, 2009, "Crystallization in Nanospaces: Regulating Polymorphism and Other Curiosities."
226. NorthEast Corridor Zeolite Association, Philadelphia, PA, December 16, 2009, "Hydrogen-bonded "Zeolite-like" Frameworks and Functional Materials"
227. Bristol Myers Squibb, New Brunswick, NJ, March 3, 2010, "Crystallization at the Nanoscale: Regulating Polymorphism and Other Curiosities."
228. Yale University, New Haven, CT, October 20, 2010, "Pathological Crystallization: Kidney Stones and Pathways to Therapies by Molecular Design"
229. New York University, Biomedical Chemistry Institute Symposium, January 28, 2011, "Prevention of L-Cystine Kidney Stones through Molecular Design."
230. City College of New York, Department of Chemistry, Biomedical Chemistry Institute Symposium, January 28, 2011, "Prevention of L-Cystine Kidney Stones through Molecular Design."
231. Hunter College, May 6, 2011, "Crystal Growth Inhibitors for the Prevention of L-Cystine Kidney Stones Through Molecular Design"
232. Rutgers University, Newark, September 16, 2011, "Crystal Growth Inhibitors for the Prevention of L-Cystine Kidney Stones Through Molecular Design"
233. University of Puerto Rico, Rio Piedras, October 19, 2011, "Materials Research at NYU: From Particles to Biomedicine"
234. University of Puerto Rico, Rio Piedras, October 19, 2011, "Architectural Diversity in Hydrogen-bonded Host Frameworks: From Molecular Jaws to Cylinders to Organic Zeolites."
235. University of North Dakota, Abbot Lecturer, April 27, 2012, "The Rapidly Changing Face of Scientific Publication in the Internet Era."
236. University of North Dakota, "Pathological Crystallization: Kidney Stones and Pathways to Therapies by Molecular Design."
237. Rutgers University, Department of Genetics, June 11, 2012, "Pathological Crystallization: Kidney Stones and Pathways to Therapies by Molecular Design."
238. National Science Foundation, Material Genomic Initiative Workshop, December 13-14, 2012, "Crystallization and Pharmaceuticals."
239. Technion, Haifa, January 13, 2013, "Pathological Crystallization: Kidney Stones and Pathways to Therapies by Molecular Design."
240. Techion, Haifa, January 14, 2013, "Diversity Among Similarity: Programmed Assembly of Organic Solid State Frameworks."
241. Weizmann Institute, January 17, 2013, "Pathological Crystallization: Kidney Stones and Pathways to Therapies by Molecular Design."
242. Ben-Gurion University, January 18, 2013, "Pathological Crystallization: Kidney Stones and Pathways to Therapies by Molecular Design."
243. Weizmann Institute, Israel Rubinstein's 65th Birthday Celebration; January 20, 2013, "Crystallization in Nanospaces: Regulating Polymorphism and Other Curiosities."
244. Gordon Research Conference, Thin Films and Crystal Growth, University of New England, Maine, Monday, July 8, 2013, "Pathological Crystallization: Kidney Stones and Pathways to Therapies by Molecular Design."
245. SUNY Stony Brook, September 12, 2013, "Pathological Crystallization: Kidney Stones and Pathways to Therapies by Molecular Design."
246. ACS on Campus, SUNY Buffalo, September 24, 2013, "Writing a Manuscript and the Peer Review Process."
247. 19th Larson Workshop, Association for Crystallization Technology, Indianapolis, IN, October 7, 2013, "Prevention of L-Cystine Kidney Stones via Manipulating Crystallization at the Nanoscale."
248. Union College, Schenectedy, NY, Department of Physics, October 17, 2013, "Crystallization in Nanospaces: Regulating Polymorphism and Other Curiosities."
249. University of Pittsburgh, Pittsburgh, PA, Department of Chemistry, October 31, 2013, "Diversity Among Similarity: Programmed Assembly of Organic Solid State Frameworks."
250. University of Florida, Gainesville, FL, Department of Chemistry, November 5, 2013, "Diversity Among Similarity: Programmed Assembly of Organic Solid State Frameworks."
251. University of California at Berkeley, Department of Chemistry, December 6, 2013, "Pathological Crystallization: Kidney Stones and Pathways to Therapies by Molecular Design."
252. Tel Aviv University, Department of Chemistry, January 21, 2014, "Diversity Among Similarity: Programmed

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- Assembly of Organic Solid State Frameworks.”
253. NYU Shanghai, April 15, 2014, “Pathological Crystals: From Spirals to Therapies.”
  254. Gordon Research Conference, Crystal Engineering, June 3, 2014, “Pathological Crystallization: Kidney Stones and Pathways to Therapies by Molecular Design.”
  255. Georgia Institute of Technology, Department of Chemistry, Department of Chemistry, Peter B. Sherry Memorial Lecture, October 2, 2014, “Pathological Crystals: From Spirals to Therapies for Stone Disease.”
  256. Lecturer, NATO Science for Peace and Security Programme, Crystallographic Course: Engineering Crystallography: from Molecular to Crystal to Functional Form, Erice, Sicily, June 5 – 14, 2015.
  257. CUNY Advanced Science Research Center, June 18, 2015, “Pathological Crystals: From Spirals to Therapies for Stone Disease.”
  258. CCNY, Department of Chemical Engineering, August 31, 2015, “Pathological Crystals: From Spirals to Therapies for Stone Disease.”
  259. MIT, Department of Materials Science and Engineering, September 17, 2015, “Pathological Crystals: From Spirals to Therapies for Stone Disease.”
  260. Clemson University, Department of Chemistry, October 23, 2015, “Diversity Among Similarity: Programmed Assembly of Organic Solid State Frameworks.”
  261. Columbia University MRSEC Colloquium, December 1, 2015, “Diversity Among Similarity: Programmed Assembly of Organic Solid State Frameworks.”
  262. Mid-Atlantic Region Meeting, Riverdale, New York, NY, June 9, 2016, “Stopping crystal growth in its tracks: Pathways to therapies for pathological crystallization”
  263. University of Strasbourg, January 6, 2017, “Crystallization under Nanoscale Confinement”
  264. University of Strasbourg, January 11, 2017, “Hydrogen-bonded “Zeolite-like” Frameworks and Functional Materials”
  265. University of Strasbourg, January 13, 2017, “Stopping Crystal Growth in its Tracks: Pathways to Therapies for Pathological Crystallization”
  266. University of Warwick, February 22, 2017, “Stopping Crystal Growth in its Tracks: Pathways to Therapies for Pathological Crystallization”
  267. Imperial University, February 23, 2017, “Stopping Crystal Growth in its Tracks: Pathways to Therapies for Pathological Crystallization”
  268. ICCOSS XXIII, Stellenbosch, South Africa, April 6, 2017, “Stopping Crystal Growth in its Tracks: Pathways to Therapies for Pathological Crystallization”
  269. Abbvie Corporation, North Chicago, May 15, 2017, “Regulating Crystallization at the Nanoscale: From Confinement to Molecular Recognition”
  270. Brookhaven National Laboratory, January 23, 2018, “Hydrogen-bonded Frameworks with Malleable Nanocavities”
  271. 3<sup>rd</sup> Annual NYU-Tel Aviv Symposium, Tel Aviv, Israel, February 4 – 7, 2018, “Stopping pathological crystallization through molecular design: Therapies for kidney stone prevention.
  272. Weizmann Institute for Science, Rehovot, Israel, “Engineering more potent crystalline insecticides: science, ethical quandaries and alternative facts.”
  273. Brandeis University, April 9, 2018, “Stopping Crystal Growth in its Tracks: Pathways to Therapies for Pathological Crystallization.”
  274. SUNY Buffalo, Erich Bloch Symposium, June 4, 2018, “Fact-Driven Science Policy: A Case Study of Crystalline Insecticides.”
  275. University of Puerto Rico, Rio Piedras, January 18, 2019, “Hydrogen-bonding Frameworks with Adjustable Cavities.”
  276. Ben-Gurion University, Beer Sheva, Israel, January 6, 2020; Inaugural Joel Bernstein Memorial Lecture. “Manipulating Solid State Chemistry and Polymorphism: A Story of Contact Insecticides and Infectious Disease.”
  277. Weizmann Institute of Science, Rehovot, Israel, January 7, 2020. “A hydrogen-bonded framework toolkit for molecular structure determination.”
  278. Technion – Israel Institute of Technology, January 8, 2020, “Stopping Crystal Growth in its Tracks: Preventing Disease and Other Crystal Mysteries.”
  279. Dartmouth College, February 11, 2021, “Stopping Crystal Growth in its Tracks: Preventing Disease and Other Crystal Mysteries.”
  280. ACS Spring Meeting, Symposium on Polymorphism, April 7, 2021, “Polymorphism properties and transformation pathways under nanoconfinement.”
  281. Clarkson University, Postdam, NY, November 21, 2021, “Stopping Crystal Growth in its Tracks: Preventing Disease and Other Crystal Mysteries.”



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282. University of Milan, Bicocca, June 27 – July 1, 2022 “A weeklong series of lectures for University of Milan materials science students.”
283. Crystal Growth & Design Webinar Series, October 4, 2022, “Crystallization in Nanospaces: Consequences for Nucleation and Polymorphism”
284. Drexel University, October 26, 2022, “Stopping Crystal Growth in its Tracks: Preventing Disease and Other Crystal Mysteries.”
285. Xavier University of Louisiana, January 26, 2023, “Stopping Crystal Growth in its Tracks: Preventing Disease and Other Crystal Mysteries.”
286. Xavier University of Louisiana, February 23, 2023, "Crystal Polymorphism and Sustainable Prevention of Infectious Disease."
287. University of Granada, March 24, 2023, "Crystal Polymorphism and Sustainable Prevention of Infectious Disease."
288. Instituto Andaluz de Ciencias de la Tierra, April 18, 2023, "Stopping Crystal Growth in its Tracks: Molecular Therapies for Pathological Crystallization."
289. University of Granada, April 28, 2023, "A hydrogen-bonded framework toolkit for organic materials and molecular structure determination."

290.

**External Funding 1990–present (does not include internal grants and awards)**

Agency	Title	Dates	Amount
<b>U Minnesota</b>			
Dupont	Piezoelectric sensors, unrestricted gift	1991-1993	\$90,000
National Science Foundation, Division of Materials Research	Directing Growth of Molecular Crystals on Monolayers	8/1/91-7/31/94	\$318,000
Defense Advanced Research Projects Administration	Lithium/Polymer Batteries: High Performance Electrodes (w/ three Co-Pis)	4/1/92-3/31/96	\$3,250,000
National Association of Corrosion Engineers	In-situ Investigations of Microbiologically Influenced Corrosion	8/1/92-7/31/94	\$40,000
Office of Naval Research	Electrocrystallization of Molecular Solids	5/1/93-4/31/96	\$300,000
Research Frontiers, Inc.	Molecular Solids	9/1/93 – 2/28/94	\$20,000
Office of Naval Research /ASSERT	Nanoscale Control of Structure in Electrocrystallized Molecular Solids	9/1/93-8/31/96	\$111,000
Office of Naval Research	Atomic Force Microscope for Real Time Imaging of Electrocrystallization	11/15/93	\$65,000
National Science Foundation, Division of Materials Research	Controlling Nucleation and growth of Molecular Crystals on Molecular Interfaces	8/1/94-7/31/97	\$330,000
Dupont	Piezoelectric sensors, unrestricted gift	1995-1996	\$25,000
Kodak	AFM studies of nucleation and growth of an organic dye	9/15/95-6/15/96	\$50,000
Office of Naval Research	Electrocrystallization of Nanostructured Molecular Materials	5/1/96-9/30/98	\$250,000
National Science Foundation	Acquisition of an X-ray Diffraction System	7/15/96-6/30/98	\$138,200
National Science Foundation	Renovation of Amundson Hall	10/1/96-9/30/99	\$327,000 (+ \$327,000 UMN funds)
Cargill Dow	Epitaxially-promoted crystallization of poly(lactic acid)	1996-1997	\$80,000
Affymax	Surface Modification for Bioassays	1996-1997	\$80,000
Office of Naval Research /ASSERT	Electrochemical Fabrication and Local Conductivity Characterization with Atomic	6/1/97-5/31/00	\$127,655

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	Force Microscopy		
National Science Foundation, Division of Materials Research	Creativity Extension: Controlled Nucleation and Growth of Molecular Crystals on Molecular Interfaces	8/1/97-7/31/99	\$265,000
Dupont	Piezoelectric sensors, unrestricted gift	1998-1999	\$15,000
National Science Foundation	University of Minnesota Materials Research Science and Engineering Center (w/ co-PI F. S. Bates)	9/1/98-8/31/02	\$7,135,000
Office of Naval Research	Electrocrystallization of Nanostructured Molecular Materials	10/1/98-9/30/01	\$300,000
National Science Foundation	Directed Templating and Synthesis of Low-Density Molecular Crystal Frameworks	11/1/99-10/31/02	\$456,000
ONR/DURIP	Atomic Force Microscopy System for Characterization of Nanoscale Redox Storage Systems	June, 2000	\$100,000
Department of Veterans Affairs	Influence of Crystal Structure on Kidney Stone	1/1/00 – 12/31/01	\$6,000
National Science Foundation, Division of Materials Research	Gordon Research Conference: “Organic Structures and Properties”; New London, CT; June 17-22, 2000	4/1/00-3/31/01	\$5,000
United States-Israel Binational Science Foundation	Design and Growth under Corrugated Surfaces: Interdigitation, imprinting and growth of porous materials from the molecular level	9/1/00 – 8/31/03	\$75,000
National Science Foundation Division of Materials Research	University of Minnesota Materials Research Science and Engineering Center (P.I.; Director)	9/1/02-8/31/08	\$14,760,000
National Science Foundation Chemical and Transport Systems-GOALI	Tandem Computational and Experimental Combinatorics for Controlled Crystallization of Polymorphs	4/1/03 – 3/31/06	\$300,000
Eli Lilly	Tandem Computational and Experimental Combinatorics for Controlled Crystallization of Polymorphs	3/1/03 – 2/28/04	\$5,000
National Science Foundation	Functional Organic Solid State Materials Derived from Designer Host Frameworks	7/15/03 – 7/14/08	\$580,000
National Science Foundation	Acquisition of a SQUID Magnetometer for Research and Education in Magnetic Materials (w/ 4 co-P.I.s)	8/15/03 – 8/14/04	\$184,592
Xcel Energy Renewable Development fund	Renewable Energy from Sunlight using Organic Photovoltaics (w/ 2 co-Pis)	1/1/05 – 12/31/07	\$375,000
University of Minnesota Initiative for Renewable Energy and the Environment	Renewable Energy from Sunlight using Organic Photovoltaics (w/ 2 co-Pis)	1/1/05 – 12/31/07	\$150,000
Binational Science Foundation	A Stereochemical Approach Towards Control of Crystal Nucleation and Polymorphism (with M. Lahav, I. Weissbuch, Weizmann; M. A. Hillmyer)	9/1/05 – 8/31/08	\$100,000
<b>NYU</b>			
National Science Foundation (DMR-0648788)	NYU-CCNY REU for the Science and Engineering of Soft Materials and Interfaces (SESMI)	03/01/07 – 02/28/10	\$306,000
National Institutes of Health	Crystal Aggregation in Kidney Stones (with	08/01/06-07/31/09	\$648,919

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Health (NIDDK R01-DK068551-02A2)	co-PI J. A. Wesson, Medical College of Wisconsin)		
National Science Foundation (DMR-0820341)	NYU MRSEC: (PI, Director)	09/01/08-08/31/14	\$7,200,000
National Science Foundation (DMR-0906576)	Crystalline Encapsulants and Functional Materials Through Molecular Design	06/01/09 – 05/31/13	\$600,000
Roche Pharmaceuticals	Stabilized amorphous formulations	05/01/09=08/30/11	\$180,000
National Science Foundation (CHE-0840277)	Purchase of a Cyber-enabled X-Ray Microdiffractometer for the NYC Region	09/01/09-08/31/12	\$350,000
National Science Foundation (DMR-0923251)	PREM: Nanoscale Imaging Systems (w/ Xavier University of Louisiana)	09/01/09 – 08/31/14	\$3,000,000
National Science Foundation (DMR-0923251)	MRI: Acquisition of a Field Emission Scanning Electron Microscope (PI, w/ co-Pis T. Bromage, D. Pine)	09/01/09 – 08/31/13	\$458,966
National Science Foundation (CHE-0958457)	MRI-R2: Acquisition of a MALDI-TOF Mass Spectrometer (co-PI w/ P. Arora (PI), J. Canary)	02/01/10 – 01/31/13	\$318,425
National Science Foundation (DMR-1005017)	Crystalline Encapsulants and Functional Materials Through Molecular Design: Supplement for the purchase of a variable temperature microdiffractometer accessory	06/01/10 – 05/31/13	\$20,000
National Science Foundation ARI-R <sup>2</sup> (CMMI-0957834)	NYU Structural DNA Nanotechnology Facility (PI, w/ co-Pis N. Seeman, J. Canary)	10/01/10-09/30/13	\$1,663,000
National Science Foundation (DMR-1206337)	GOALI: Design of Crystal Growth Inhibitors for Kidney Xenostones (w/ co-PI Anthony Ford, Afferent Pharmaceuticals)	06/01/12-05/31/16	\$480,000
National Science Foundation (DMR-1308677)	Designer Molecular Frameworks and Functional Materials	09/01/13-08/31/17	\$575,000
Biogen, Idec, Inc.	AFM of Protein Crystallization: A model for phase separation in protein solutions	12/1/14-11/30/16	\$86,975
National Science Foundation (DMR-1420073)	NYU Materials Research Science and Engineering Center: (PI, Director)	11/01/14-10/31/20	\$14,400,000
NIH-SBIR	Instrument for Holographic Characterization of Protein Aggregates (w/ D. Grier, Spheryx)	06/01/16-09/31/16	\$302,900
NIH 1R01DK112782-01	L-Cystine Diamides as Inhibitors of L-Cystine Stone Formation in Cystinuria (with Rutgers University (PRIME), Longqin Hu, Amrik Sahota)	03/01/17-01/31/22	\$2,878,846 NYU Share: \$222,144
National Science Foundation (DMR-1708716)	Crystallization under Nanoscale Confinement	07/01/17-06/31/22	\$450,000
National Science Foundation (DMR-1856659)	International Conference on the Chemistry of the Organic Solid State	03/01/2019 – 02/29/2020	\$12,000
United States-Israel Binational Science Foundation (BSF-2018298)	Engineering the Interface Between Contact Insecticides and Mosquitoes (Co-I)	10/01/2019-09/30/2023	\$115,000
National Science Foundation(DMR-	GOALI: Designing Adaptive Hydrogen-bonded Frameworks for Molecular Structure	05/01/2020-04/30/2025	\$502,215

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2002964)		Determination		
National Science Foundation (DMR-2118890)		DMREF: Accelerated discovery of metastable but persistent contact insecticide crystal polymorphs for enhanced activity and sustainability (with M. Tuckerman, J. Rogal, A. Shtukenberg)	04/01/22 - 03/21/26	\$1,713,569
<b>Pending</b>		NONE		

**Courses Taught, University of Minnesota**

Year	Quarter	Course No.	Course title
1990	Fall	MatS3011	Introduction to the Science of Materials
1991	Winter	None assigned	None assigned
	Spring	MatS 8481	Selected Topics in Materials Science and Engineering: "Molecular Crystals"
	Fall	MatS 5011	Introduction to the Science of Materials
1992	Winter	MATS 5202	X-Ray Structural Analysis
	Spring	MatS 8482	Selected Topics in Materials Science and Engineering: "Molecular Crystals"
	Fall	MatS 5011	Introduction to the Science of Materials
1993	Winter	MATS 5202	X-Ray Structural Analysis
	Spring	MATS 5455	Electrochemical Engineering
	Fall	MatS 5011	Introduction to the Science of Materials
1994	Winter	MATS 5202	X-Ray Structural Analysis
	Spring	ChEn 5301	Reaction Engineering Principles
	Fall	MatS 5011	Introduction to the Science of Materials
1995	Winter	MATS 5202	X-Ray Structural Analysis
	Spring	CHEM 5993 MatS 8114	Materials Chemistry Structure and Symmetry in Soft Materials
	Fall	Quarter Leave	Quarter Leave
1996	Winter	MATS 5202	X-Ray Structural Analysis
	Spring	CHEM 5993 MatS 8114	Materials Chemistry Structure and Symmetry in Soft Materials
	Spring	ChEn 5301	Reaction Engineering Principles
1997	Winter	MATS 5202	X-Ray Structural Analysis
	Spring	CHEM 5993	Materials Chemistry
	Fall	MatS 3400	Mechanical Properties of Materials
1998	Winter	MATS 5202	X-Ray Structural Analysis
	Spring	ChEn5101	Principles of Chemical Engineering I
	Fall	MatS 3400	Mechanical Properties of Materials
1999	Winter	MATS 5202	X-Ray Structural Analysis
	Spring	MatS 8114	Structure and Symmetry in Soft Materials
	Fall	MatS 5011	Introduction to the Science of Materials
2000	Spring	MatS 2001	Introduction to the Science of Engineering Materials
	Fall	ChEn 4401	Chemical Engineering Laboratory I (Unit Operations)
2001	Spring	MatS 4002	Solid State Diffusion and Kinetics
	Fall	ChEn 4401	Chemical Engineering Laboratory I (Unit Operations)
2002	Spring	MatS 4002	Solid State Diffusion and Kinetics
	Fall	MatS 8001	Structure and Symmetry of Materials
2003	Spring	MatS 4002	Solid State Diffusion and Kinetics
	Fall	MatS 3011	Introduction to Materials Science and Engineering
2004	Spring	MatS 4002 MatS 8114	Solid State Diffusion and Kinetics Structure and Symmetry in Soft Materials
	Fall	MatS 8001	Structure and Symmetry of Materials
2005	Spring	Leave	Leave

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	Fall	MatS 2001	Introduction to the Science of Engineering Materials
2006	Spring	MatS 8114	Structure and Symmetry in Soft Materials

### Courses Taught, New York University

2006	Fall	Release	Release
2007	Spring	MAP	Energy and the Environment
2007	Fall	Chemistry	Science of Materials
2008	Spring	MAP	Energy and the Environment
2008	Fall	Chemistry	Science of Materials
2009	Spring	Chemistry	Science of Materials
2010	Spring	Chemistry	Science of Materials
2010	Fall	Chemistry	Science of Materials
2011	Spring	Chemistry	Crystal Engineering (w/ Bart Kahr)
2011	Fall	Chemistry	Science of Materials
2012	Fall	Chemistry	Science of Materials
2013	Fall	Chemistry	Advanced General Chemistry I
2014	Fall	Chemistry	Advanced General Chemistry I
2015	Spring	CORE	Energy and the Environment
2015	Fall	Chemistry	Advanced General Chemistry I
2016	Spring	CORE	Energy and the Environment
2016	Fall	Chemistry	Science of Materials
2016	Fall	Chemistry	Professional Development in the Sciences
2017	Fall	Chemistry	Science of Materials
2017	Fall	Chemistry	Professional Development in the Sciences
2018	Spring	CORE	Energy and the Environment
2018	Fall	Chemistry	Accelerated General Chemistry
2018	Fall	Chemistry	Professional Development in the Sciences
2019	Spring	Chemistry	Inorganic Chemistry
2019	Fall	Chemistry	Accelerated General Chemistry
2019	Fall	Chemistry	Professional Development in the Sciences
2020	Fall	Chemistry	Science of Materials (online)
2021	Spring	CORE	Energy and the Environment (online)
2021	Fall	Chemistry	Original Research Proposal (grad)
2021	Fall	Chemistry	Graduate Seminar
2022	Spring	Chemistry	Inorganic Chemistry
2022	Fall	Chemistry	Original Research Proposal (grad)
2022	Fall	Chemistry	Graduate Seminar
2023	Spring		Sabbatical
2023	Fall	Chemistry	Original Research Proposal (grad)
2023	Fall	Chemistry	Graduate Seminar
2023	Fall	Chemistry	Science of Materials

### Current and past group members (and current positions) (not including visiting scientists and approximately 60 undergraduates)

#### Graduate Students

Juan Wang (M.S., Minnesota, 1992; Dow Chemical)

Thesis: *A Quartz Resonator-Based Study of the pH Dependent Behavior of Amphoteric Polymer Films and Self-assembled Thiol Monolayers*

Hei-ku Park (w/ W. Smyrl; Ph.D., Minnesota, 1992; Keimyung University, Daegu, Korea)

Thesis: *Intercalation Processes in Thin Electroactive Materials*

Alex Katz (M.S., Minnesota, 1994; Cal Tech Ph. D.; Universite'. Louis Pasteur postdoc; faculty, Chem. Eng., Berkeley)

Thesis: *A Quartz Resonator-based Rheometer for the Dynamic Investigation of Viscoelastic Films*

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Shulong Li (Ph.D., Minnesota, 1993, Milliken Research)

Thesis: *Conductive Polymer Fibers and Low Dimensional Organic Crystals*

Lynn M. Frostman (Ph.D., Minnesota, 1995; Baker Chemical)

Thesis: *Growth of Molecular Crystals on Functionalized Monolayers*

Andrew Hillier (Ph.D., Minnesota, 1995; faculty, Chem. Eng., U. Virginia; faculty, Chem. Eng., Iowa State)

Thesis: *Assembly of Crystalline Molecular Lattices on Highly Ordered Substrates*

Victoria Russell (Ph.D., Minnesota, 1995; Eli Lilly postdoc; 3M)

Thesis: *Hydrogen-bonding and Control of Molecular Packing in the Organic Solid State with Implications for Materials Design*

Christopher Yip (Ph.D., Minnesota, 1997; faculty, Chem. Eng., U. Toronto)

Thesis: *Molecular Self-Assembly at Interfaces: From Crystallization to Protein-Ligand Binding*

Zuxuan Lin (Ph. D., Minnesota, 1996; Seagate)

Thesis: *Characteristics and Applications of the Quartz Crystal Microbalance with Liquid Media*

Cara Evans (Ph. D., Minnesota, 1998, UCSB postoc, Nestle, Lausanne)

Thesis: *Confinement of Dyes in Nanometer-Scale Domains*

Wei Wei Lee (Ph.D., Minnesota, 1999; Start up company, CA)

Thesis: *Structural Study of Vanadium Pentoxide Sols, Gels, and Xerogels*

Julie Last (Ph.D., Minnesota, 1999, Sandia, New Mexico)

Thesis: *Design and Fabrication of Crystalline Molecular Monolayers*

Dan Hooks (Ph.D., Minnesota, 2000, Los Alamos, New Mexico)

Thesis: *Epitaxial Nucleation and Growth of Molecular Films*

Adam M. Pivovar (Ph.D., Minnesota, 2000, NIST)

Thesis: *The Dynamic Behavior and Inclusion Selectivity of Guanidinium Organodisulfonate Host Lattices*

Eric P. Codner: (Ph.D., Minnesota, 2001, Startup company, Madison, WI)

Thesis: *Simultaneous Spectroscopic and Adhesion Measurements with a Tandem IR-JKR Instrument*

David Plaut (Ph.D., Minnesota, 2003; 3M)

Thesis: *Structural Characterization of Crystalline Ternary Inclusion Compounds at the Air-Water Interface*

Taesung Jung (BK-21 visiting student, Seoul National University, 2003 – 2004)

Project title: *Atomic Force Microscopy of Calcium Oxalate Crystal Growth*

Sidhartha Mohapatra (w/ C. D. Frisbie; M. S., Minnesota, 2004, OrganicID, Austin, TX)

Thesis: *Structural, Morphological, and Electrical Characterization of Thin Films of Novel Organic Semiconductors*

Stephen A. Martin (Ph.D., Minnesota, 2004, MIT, postdoc; faculty member, University of Virginia)

Thesis: *Structure and Properties of Organic Materials Reinforced by Hydrogen Bonding*

Xiaoxia Sheng (Ph.D., Minnesota, 2004, MIT, postdoc; (Abbot, SoliPharma LLC, Hangzhou, China))

Thesis: *Probing Crystal Growth and Adhesion Processes at the Molecular Level*

Jeong-Myeong Ha (Ph.D., Minnesota, 2006, Berkeley, postdoc; KIST, Seoul, Korea)

Thesis: *Crystallization, Polymorphism and Reactivity in Nanoscale Reactors*

Sang-Jae Park (M. S. 2005, Minnesota)

Thesis: *Reinforced Hexagonal Networks of Hydrogen-bonded Nanotubes*

Jinsoo Kim (KOSEF visiting student, Seoul National University, 2004 – 2005)

Project title: *Inclusion-based Separations of Molecular Isomers and Chiral Compounds*

Matthew J. Horner (Ph.D., Minnesota, 2006; Hutchinson Technology)

Thesis: *Lamellar-Cylindrical Isomerism at Short Length Scales*

Brian Olmsted (Ph.D., Minnesota, 2010; Electrical Engineering, Minnesota)

Thesis: *Tandem Computational and Experimental Combinatorics for Controlled Crystallization of Polymorphs*

Elisey Yagodkin (Ph.D. student, transferred to different research group at University of Minnesota)

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Thesis: *Organic Transport Materials for Field Effect Transistors*

Airon Soegiarto (Ph.D., Minnesota, 2010; Singapore, Import/Export)

Thesis: *Crystalline Hydrogen-bonded Frameworks*

Benjamin Hamilton (Ph.D., Minnesota, 2009; Mustang Engineering)

Thesis: *Crystallization in Nanoscale Reactors*

Yuzhou Liu (Ph.D, NYU, 2011; Milliken Corporation)

Thesis: *Rationally Tailoring Free Space within Hydrogen-bonded Frameworks by Designed Molecular Features*

Pengcheng Song (Ph.D, NYU, 2015; Weiita LED Lighting)

Thesis: *From micron to nano: Crystallization of colloid particles that mimic molecular crystals*

Zina Zhu (Ph.D. NYU, 2013; postdoc, MIT; Milliken Corporation, Shanghai)

Thesis: *Rational Design of Crystal Growth Inhibitors for Treatment of Cystinuria Kidney Stones*

Wenchang Xiao (Ph.D., NYU, graduated 2015, startup, China)

Thesis: *Structures and Properties of Designer Hydrogen Bonded Frameworks*

Qi Jiang (Ph.D., NYU, 2015, Boehringer Ingelheim)

Thesis: *Manipulating Crystallization: From Nanoscopic to Microscopic*

Laura Poloni (Ph.D., NYU, 2016, AbbVie, Chicago, Illinois, then McKinsey)

Thesis: *Site Discrimination by Molecular Imposters at Dissymmetric Molecular Crystal Surfaces*

Xiao Zhong (Ph.D., NYU, 2017, Evonik, Jersey City)

Thesis: *Self-Assembly at the Colloidal Scale*

Isabel Olson (Ph.D., NYU, 2019, Gilead Sciences, Inc.)

Thesis: *Simulations of Screw Dislocations in Molecular Crystals*

Yuantao Li (Ph.D., NYU, 2019, L.E.K. Consulting)

Thesis: *Stereochemistry, Photophysics and Diffusion in Designer Molecular Frameworks*

Xiaodi Zhong (current Ph.D. student, NYU, graduated 2021)

Thesis Title: *Dislocation-actuated Crystal Growth and Crystal Growth Inhibition*

Yang Wu (current Ph.D. student, NYU, anticipated graduation 2022)

Tentative Thesis Title: *Fabrication and Guided Motion of Microscale Swimmers*

Noalle Fallah (current Ph.D. student, NYU, graduated 2021)

Thesis Title: *Profiles and Pathways of Polymorphism*

Xiaolong Zhu (current Ph.D. student, NYU, graduated 2021)

Thesis Title: *Manipulating Solid Forms of Contact Insecticides for Infectious Disease Prevention*

Fangyuan Dong (current Ph.D. student, NYU, co-advised with M. Weck; graduated 2022)

Thesis Title: *Crystallization of Symmetry-controlled Colloidal Particle Assemblies*

Anna Yusov (current Ph.D. student, NYU, graduated 2023; McKinsey)

Tentative Thesis Title: *Guanidinium Sulfonate Frameworks with Chiral Guest Molecules*

Alexandra Dillon (current Ph.D. student, NYU, anticipated graduation 2024)

Tentative Thesis Title: *Chiral Hydrogen-bonded Molecular Frameworks*

Bryan Erriah (current Ph.D. student, NYU; co-advised with B. Kahr; anticipated graduation 2024)

Tentative Thesis Title: *Contact Insecticides*

Hengyu Zhou ((current Ph.D. student, NYU; co-advised with B. Kahr; anticipated graduation 2024)

Tentative Thesis Title: *Physical Properties of Organic Crystals*

Leilani Smith (co-advised with B. Kahr; graduated with Master's degree, 2023)

#### **Postdoctoral Research Associates**

Phillip Carter (1991 – 93, Nalco)

March 27, 2024

Project: *Regulating Heterogeneous Crystallization and Polymorphism Through Substrate Design*

Mamoun Bader (1993 – 1994, Penn State, Hazleton; Alfaisal University)

Project: *Molecular Interfaces for Controlled Nucleation of Organic Crystals*

Michael Dvorak (1993 – 1994, faculty, Chemistry, St. Cloud State University)

Project: *Scanning Tunneling Microscopy of Organic Conductors and Superconductors*

Kelly Moran (1992 – 1993, postdoc, Bristol, UK)

Project: *Vanadium Oxide Energy Storage Materials*

Joachim Hossick-Schott (1994 – 1995, DataCard, Minneapolis)

Project: *Scanning Tunneling Microscopy of Organic Nanocrystals*

Salvatore Bonafede (1994 – 1995, NRL)

Project: *Regulating Polymorphism Through Ledge-Directed Epitaxy on Crystal Substrates*

Guangzhao Mao (1995 – 1996, faculty, Chem. Eng., Wayne State University)

Project: *Probing Crystallization of a Photographic Dye through Real-time in situ Atomic Force Microscopy*

Tim Stoebe (1996 – 1998, Seagate, Minneapolis)

Project: *Superspreading Surfactants*

A. Mannivanan (1996 – 1997, research associate, Univ. West Virginia)

Project: *Epitaxial Crystalline Organic Films*

Wenjie Li (1996–1997, startup company, California)

Project: *Pillared Hydrogen-bonded Host Frameworks*

Melanie Sullivan (1998 – 1999, Roche, Indianapolis, IN)

Project Topic: *Combinatorial Electrode Arrays for Optimizing Chiral Electrocatalysis*

Jennifer Swift (1997 – 1999 (faculty, Chemistry, Georgetown)

Project Topic: *Design of Crystalline Host Frameworks*

Mike Vela (1998 – 1999 (high school instructor, Boston)

Project: *Nanoscale Energy Storage Materials*

Travis Holman (1999 – 2001, faculty, Chemistry, Georgetown)

Project: *Symmetry and Metric Control in Hydrogen-bonded Host Frameworks*

Christine Mitchell (2000 – 2001, SSCI, West Lafayette, IN)

Project: *Regulating Polymorphism of Pharmaceutical Crystals with Crystal-on-Crystal Epitaxy*

Shouwu Guo (2000 – 2002, postdoc, Northwestern University, Evanston)

Project: *Direct Visualization of Calcium Oxalate Crystallization with Real-time in situ Atomic Force Microscopy*

Radu Custelcean (2000 – 2002, Oak Ridge)

Project: *Introducing Chirality in Crystalline Hydrogen-bonded Frameworks*

Brian Holmes (2002 – 2004, staff scientist, NRL)

Project: *Synthesis of Organic Transport Molecules for Field Effect Transistors*

Sang-Ok Lee (Department of Defense, Seoul, Korea)

Project: *Enantioselective Separations via Self-assembly of Hydrogen-bonded Host Frameworks*

IlWon Kim (Soongsil University, Korea, Chemical Engineering, faculty)

Project: *Crystal Growth in Kidney Stones: Pathological Mineralization*

Sam Hawxwell (2007 – 2008; deceased, February 8, 2008))

Project: *Adjustable Molecular Capsules*

Galia Mayaan (Technion, Chemistry, faculty)

Project: *Peptidomimetic Assemblies*

Jeffrey Rimer (University of Houston, Chemical Engineering, faculty)

Project: *Crystal Aggregation in Kidney Stones: Pathological Mineralization*



March 27, 2024

Zihua An (NYU, clinical faculty)

*Project: Crystal Aggregation in Kidney Stones: Pathological Mineralization*

Daniele Musumeci (CUNY, York University, Chemistry, faculty)

*Project: Amorphous-to-Crystalline Transitions in Organic Solids*

David Ehre (Wiezmann Institute, research scientist)

*Project: Crystallization in Levitated Microdroplets*

Trina Mandal (NYU, clinical faculty)

*Project: Nanoscale Adhesion at Crystal Surfaces*

Stephanie Lee (Stevens Institute of Technology, Chemical Engineering and Materials Science, faculty)

*Project: Colloidal Particle Assembly under Electric Fields*

David Connors (Georgia State, lecturer)

*Project: Molecular Solid State Frameworks*

Takuji Adachi (University of Strasbourg)

*Project: Molecular Solid State Frameworks and Crystal Growth Dynamics*

Ran Drori (Yeshiva University)

*Regulation of Ice Nucleation with Biomimetic Molecules using Microfluidics*

Marcel Handke (startup)

*Project: Molecular Solid-State Frameworks*

Jingxiang Yang (present)

*Project: Polymorphic Contact Insecticides*