

Curriculum Vitae
Charles Albert Schmuttenmaer

Address

Department of Chemistry
Yale University
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Research Interests

Experimental Physical Chemistry and Chemical Physics: THz spectroscopy; Solar energy; Sub-picosecond time-resolved photoconductivity; Nanoscale properties and phenomena; Low frequency modes in organic molecular crystals; Metamaterials displaying THz optical activity; Electron transfer and proton transfer; Solvation and energy relaxation in liquids; Laser spectroscopy.

Education and Experience

Professor, Department of Chemistry, Yale University	2003 –
Associate Professor, Department of Chemistry, Yale University	1998 – 2003
Assistant Professor, Department of Chemistry, Yale University	1994 – 1998
Postdoctoral Associate, U of Rochester (with R. J. D. Miller)	1992 – 1994
Ph.D., University of California, Berkeley (with R. J. Saykally)	1991
B. S., University of Illinois at Urbana-Champaign (with H. S. Gutowsky)	1985

Honors and Awards

Fellow, American Physical Society, Division of Chemical Physics, 2016.
Fellow, American Association for the Advancement of Science, 2015.
Sloan Research Fellowship, 1999 – 2001.
Yale University Junior Faculty Fellowship, Academic year 1997 – 1998.
Recipient of the NSF CAREER Award, 1997.
Yale University Arthur Greer Memorial Prize, 1996.
Camille and Henry Dreyfus Foundation New Faculty Award, 1994.
University of California Regents Fellowship, 1985.
University of California Chemistry Fellowship, 1985.
American Institute of Chemists Award, 1985.
Graduated Magna Cum Laude with Highest Distinction and University Honors

Professional Activities

Yale Faculty Senate, July, 2015 – June, 2018

Instructor: Alternative Energy Summer School in Telluride, June 24 – June 28, 2014, June 21 – June 25, 2016 Telluride, CO.

Conference Co-Organizer: Optical Terahertz Science and Technology (OTST) Meeting, March, 2011, Santa Barbara, CA.

Visiting Professor, Courtesy appointment, Institute for Integrated Cell-Material Sciences (iCeMS), Kyoto University, periodically between 2009 and 2011.

Member: American Chemical Society; American Physical Society; American Association for the Advancement of Science; New York Academy of Sciences; Peer Review College of the Danish Council for Strategic Research.

March, 2017

Publications

115. Kevin P. Regan, John R. Swierk, Jens Neu, and Charles A. Schmuttenmaer, “Frequency-Dependent Terahertz Transient Photoconductivity of Mesoporous SnO₂ Films.” *J. Chem. Phys. C*, Submitted, March 2017.
114. Bradley J. Brennan, Kevin P. Regan, Alec C. Durrell, Charles A. Schmuttenmaer, and Gary W. Brudvig, “Solvent Dependence of Lateral Charge Transfer in a Porphyrin Monolayer.” *ACS Energy Lett.*, **2**, 168 – 173 (2017). **DOI:** 10.1021/acsenergylett.6b00583
113. Jianbing Jiang, John R. Swierk, Kelly L. Materna, Svante Hedström, Shin Hee Lee, Robert H. Crabtree, Charles A. Schmuttenmaer, Victor Batista, and Gary W. Brudvig, “High Potential Porphyrins for Photoelectrochemical Applications Supported on SnO₂ and TiO₂ Surfaces.” *J. Chem. Phys. C*, **120**, 28971 – 28982 (2016). **DOI:** 10.1021/acs.jpcc.6b10350
112. John R. Swierk, Kevin P. Regan, Jianbing Jiang, Gary W. Brudvig, and Charles A. Schmuttenmaer, “Rutile TiO₂ as an Anode Material for Water-Splitting Dye-Sensitized Photoelectrochemical Cells.” *ACS Energy Lett.*, **1**, 603 – 606 (2016). **DOI:** 10.1021/acsenergylett.6b00279
111. Matthieu Koepf, Christopher Koenigsmann, Wendu Ding, Arunabh Batra, Christian F. A. Negre, Latha Venkataraman, Gary W. Brudvig, Victor S. Batista, Charles A. Schmuttenmaer, and Robert H. Crabtree, “Controlling the Rectification Properties of Molecular Junctions through Molecule-Electrode Coupling.” *Nanoscale*, **8**, 16357 – 16362 (2016). **DOI:** 10.1039/C6NR04830G
110. Nicholas S. McCool, John R. Swierk, Coleen T. Nemes, Charles A. Schmuttenmaer, and Thomas E. Mallouk, “Dynamics of Electron Injection in SnO₂/TiO₂ Core/Shell Electrodes for Water-splitting Dye-sensitized Photoelectrochemical Cells.” *J. Phys. Chem. Lett.*, **7**, 2930 – 2934 (2016). **DOI:** 10.1021/acs.jpcclett.6b01528
109. Jianbing Jiang[†], John R. Swierk[†], Svante Hedström, Adam J. Matula, Robert H. Crabtree, Victor S. Batista, Charles A. Schmuttenmaer, and Gary W. Brudvig, “Molecular Design of Light-Harvesting Photosensitizers: Effect of Varied Linker Conjugation on Interfacial Electron Transfer.” *Phys. Chem. Chem. Phys.*, **18**, 18678 – 18682 (2016). **DOI:** 10.1039/c6cp04377a
108. Nicholas S. McCool, John R. Swierk, Coleen T. Nemes, Timothy P. Saunders, Charles A. Schmuttenmaer, and Thomas E. Mallouk, “Proton-Induced Trap States, Injection and Recombination Dynamics in Water-Splitting Dye-Sensitized Photoelectrochemical Cells.” *ACS Appl. Mater. Interfaces*, **8**, 16727 – 16735 (2016). **DOI:** 10.1021/acsami.6b05362
107. Christopher Koenigsmann, Wendu Ding, Matthieu Koepf, Arunabh Batra, Latha Venkataraman, Christian F. A. Negre, Gary W. Brudvig, Robert H. Crabtree, Victor S. Batista, and Charles A. Schmuttenmaer, “Structure-Function Relationships in Single-Molecule Rectification by *N*-phenylbenzamide Derivatives.” *New J. Chem.*, (2016). **DOI:** 10.1039/c6nj00870d
106. Kevin P. Regan, Stafford W. Sheehan, Christopher Koenigsmann, and Charles A. Schmuttenmaer, “Size-Dependent Ultrafast Charge Carrier Dynamics of WO₃ for Photoelectrochemical Oxidation Reactions.” *J. Phys. Chem. C*, **120**, 14926 – 14933 (2016). **DOI:** 10.1021/acs.jpcc.6b04390

105. Bradley J. Brennan,[§] Christopher Koenigsmann,[§] Kelly L. Materna, Paul M. Kim, Matthieu Koepf, Robert H. Crabtree, Charles A. Schmuttenmaer, and Gary W. Brudvig, “Surface-Induced Deprotection of THP-Protected Hydroxamic Acids on Titanium Dioxide.” *J. Phys. Chem. C*, **120**, 12495 – 12502 (2016). **DOI:** 10.1021/acs.jpcc.6b02635
104. Chuanhao Li, Christopher Koenigsmann, Fan Deng, Anna Hagstrom, Charles A. Schmuttenmaer, and Jae-Hong Kim, “Photocurrent Enhancement from Solid-State Triplet-Triplet Annihilation Upconversion of Low-Intensity, Low-Energy Photons.” *ACS Photonics*, **3**, 784 – 790 (2016). **DOI:** 10.1021/acsp Photonics.5b00694
103. Daniel J. Aschaffenburg, Michael R. C. Williams, and Charles A. Schmuttenmaer, “Terahertz Spectroscopic Polarimetry of Generalized Anisotropic Media Composed of Archimedean Spiral Arrays: Experiments and Simulations.” *J. Chem. Phys.*, **144**, 174705 (2016). **DOI:** 10.1063/1.4947469
102. Seng F. Liew, Sebastian. M. Popoff, Stafford W. Sheehan, Arthur Goetsch, Charles A. Schmuttenmaer, A. Douglas Stone, and Hui Cao, “Coherent Control of Photocurrent in a Disordered Photovoltaic System.” *ACS Photonics*, **3**, 449 – 455 (2016). **DOI:** 10.1021/acsp Photonics.5b00642
101. Wendu Ding, Matthieu Koepf, Christopher Koenigsmann, Arunabh Batra, Latha Venkataraman, Christian F. A. Negre, Gary W. Brudvig, Robert H. Crabtree, Charles A. Schmuttenmaer, and Victor S. Batista, “Computational Screening of Performance in Intrinsic Single Molecule Rectifiers.” *J. Chem. Theory Comput.*, **11**, 5888 – 5896 (2015). **DOI:** 10.1021/acs.jctc.5b00823
100. Coleen T. Nemes, Christopher Koenigsmann, and Charles A. Schmuttenmaer, “Functioning Photoelectrochemical Devices Studied with Time-Resolved Terahertz Spectroscopy.” *J. Chem. Phys. Lett.*, **6**, 3257 – 3262 (2015). **DOI:** 10.1021/acs.jpcclett.5b01473
99. Rebecca L. Milot and Charles A. Schmuttenmaer, “Electron Injection Dynamics in High-Potential Porphyrin Photoanodes.” *Acc. Chem. Res.*, **48**, 1423 – 1431 (2015). **DOI:** 10.1021/ar500363q
98. Stafford W. Sheehan, Julianne M. Thomsen, Ulrich Hintermair, Robert H. Crabtree, Gary W. Brudvig, and Charles A. Schmuttenmaer, “Direct and Stable Attachment of a Molecular Catalyst for Water Oxidation to Electrode Surfaces.” *Nature Communications*, **6**, 7469 (2015). **DOI:** 10.1038/ncomms7469
97. Chuanhao Li, Christopher Koenigsmann, Wendu Ding, Benjamin Rudshteyn, Ke R. Yang, Kevin P. Regan, Steven J. Konezny, Victor S. Batista, Gary W. Brudvig, Charles A. Schmuttenmaer, and Jae-Hong Kim, “Facet-Dependent Photoelectrochemical Performance of TiO₂ Nanostructures: An Experimental and Computational Study.” *J. Am. Chem. Soc.*, **137**, 1520 – 1529 (2015). **DOI:** 10.1021/ja5111078
96. Prashanth K. Poddutoori, Julianne M. Thomsen, Rebecca L. Milot, Stafford W. Sheehan, Christian F. A. Negre, Venkata K. R. Garapati, Charles A. Schmuttenmaer, Victor S. Batista, Gary W. Brudvig, Art van der Est, “High-Potential Photoanodes based on Phosphorus(V)

Porphyrin Sensitizers Co-Deposited on SnO₂ with the Ir(III)Cp* Water Oxidation Precatalyst.” *J. Mater. Chem. A*, **3**, 3868–3879 (2015). DOI: 10.1039/C4TA07018F

95. Christopher Koenigsmann, Teresa S. Ripolles, Bradley J. Brennan, Christian F.A. Negre, Matthieu Koepf, Alec C. Durrell, Rebecca L. Milot, Jose A. Torre, J. Bisquert, V. S. Batista, G. W. Brudvig, R. H. Crabtree, and C. A. Schmittenmaer, “Substitution of a Hydroxamic Acid Anchor into the MK-2 Dye for Enhanced Photovoltaic Performance and Water Stability in a DSSC.” *Phys. Chem. Chem. Phys.*, **16**, 16629–16641 (2014). DOI: 10.1039/c4cp02405b
94. Wendu Ding, Christian F. A. Negre, Julio L. Palma, Alec C. Durrell, Laura J. Allen, Karin J. Young, Rebecca L. Milot, C. A. Schmittenmaer, G. W. Brudvig, R. H. Crabtree, and V. S. Batista, “Linker Rectifiers for Covalent Attachment of Transition Metal Catalysts to Metal-Oxide Surfaces.” *Chem. Phys. Chem.* **15**, 1138–1147 (2014). DOI: 10.1002/cphc.201400063
93. Jason B. Baxter, Christiaan Richter, and Charles A. Schmittenmaer, “Ultrafast Carrier Dynamics in Nanostructures for Solar Fuels.” *Ann. Rev. Phys. Chem.*, **65**, 423 (2014). DOI: 10.1146/annurev-physchem-040513-103742
92. Christian F. A. Negre, Rebecca L. Milot, Lauren A. Martini, Wendu Ding, Robert H. Crabtree, Charles A. Schmittenmaer, and Victor S. Batista, “Efficiency of Interfacial Electron Transfer from Zn-Porphyrin Dyes into TiO₂ Correlated to the Linker Single Molecule Conductance.” *J. Phys. Chem. C*, **117**, 24462–24470 (2013). DOI: 10.1021/jp408738b
91. Rebecca L. Milot, Gary F. Moore, Robert H. Crabtree, Gary W. Brudvig, and Charles A. Schmittenmaer, “Electron Injection Dynamics from Photoexcited Porphyrin Dyes into SnO₂ and TiO₂ Nanoparticles.” *J. Phys. Chem. C*, **117**, 21662–21670 (2013). DOI: 10.1021/jp406734t
90. Michael R. C. Williams, Daniel J. Aschaffenburg, Benjamin Ofori-Okai, and Charles A. Schmittenmaer, “Intermolecular Vibrations in Hydrophobic Amino Acid Crystals: Experiments and Calculations.” *J. Phys. Chem. B*, **117**, 10444–10461 (2013). DOI: 10.1021/jp406730a
89. Lauren A. Martini, Gary F. Moore, Rebecca L. Milot, Lawrence Z. Cai, Stafford W. Sheehan, Charles A. Schmittenmaer, Gary W. Brudvig, and Robert H. Crabtree, “Modular assembly of high-potential Zn-porphyrin photosensitizers attached to TiO₂ with a series of anchoring groups.” *J. Phys. Chem. C*, **117**, 14526–14533 (2013). DOI: 10.1021/jp4053456
88. Timothy P. Brewster, Steven J. Konezny, Stafford W. Sheehan, Lauren A. Martini, Charles A. Schmittenmaer, and Robert H. Crabtree, “Hydroxamate Anchors for Improved Photoconversion in Dye-Sensitized Solar Cells.” *Inorg. Chem.*, **52**, 6752–6764 (2013). DOI: 10.1021/ic4010856
87. Stafford W. Sheehan, Heeso Noh, Gary W. Brudvig, Hui Cao, and Charles A. Schmittenmaer, “Plasmonic Enhancement of Dye-Sensitized Solar Cells using Core-Shell-Shell Nanostructures.” *J. Phys. Chem. C*, **117**, 927–934 (2013). DOI: 10.1021/jp311881k
86. Daniel J. Aschaffenburg, Michael R. C. Williams, Diyar Talbayev, Daniel F. Santavicca, Daniel E. Prober, and Charles A. Schmittenmaer, “Efficient Measurement of Broadband Terahertz Optical Activity.” *J. Appl. Phys.*, **100**, 241114 (2012). DOI: 10.1063/1.4729148

85. Karin J. Young, Lauren A. Martini, Rebecca L. Milot, Robert C. Snoeberger III, Victor S. Batista, Charles A. Schmittenmaer, Robert H. Crabtree, and Gary W. Brudvig, "Light-driven Water Oxidation for Solar Fuels." *Coord. Chem. Rev.*, **256**, 2503–2520 (2012). **DOI:** 10.1016/j.ccr.2012.03.031
84. Gary F. Moore, Steven J. Konezny, Hee-eun Song, Rebecca L. Milot, James D. Blakemore, Minjoo Larry Lee, Victor S. Batista, Charles A. Schmittenmaer, Robert H. Crabtree, and Gary W. Brudvig, "Bioinspired High-Potential Porphyrin Photoanodes." *J. Phys. Chem. C*, **116**, 4892–4902 (2012). **DOI:** 10.1021/jp210096m
83. Steven J. Konezny, Christiaan Richter, Robert C. Snoeberger, III, Alexander R. Parent, Gary W. Brudvig, Charles A. Schmittenmaer, and Victor S. Batista, "Fluctuation-induced Tunneling Conductivity in Nanoporous TiO₂ Thin Films." *J. Phys. Chem. Lett.* **2**, 1931–1936 (2011). **DOI:** /10.1021/jz200853v
82. Steven J. Konezny, Diyar Talbayev, Ismail El Baggari, Charles A. Schmittenmaer, and Victor S. Batista, "AC Conductivity of Nanoporous Metal-Oxide Photoanodes for Solar Energy Conversion." *Proc. SPIE*, **8098** (Physical Chemistry of Interfaces and Nanomaterials X), 809805 (2011). **DOI:** 10.1117/12.894490
81. Gary F. Moore, James D. Blakemore, Rebecca L. Milot, Jonathan F. Hull, Hee-eun Song, Lawrence Cai, Charles A. Schmittenmaer, Robert H. Crabtree, and Gary W. Brudvig, "A Visible Light Water-Splitting Cell with a Photoanode formed by Codeposition of a High-Potential Porphyrin and an Iridium Water-Oxidation Catalyst." *Energy Environ. Sci.* **4**, 2389–2392 (2011). **DOI:** 10.1039/C1EE01037A
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79. Daniel E. Rosenfeld and C. A. Schmittenmaer, "Dynamics of the Water Hydrogen Bond Network at Ionic, Non-ionic and Hydrophobic Interfaces in Nanopores and Reverse Micelles." *J. Phys. Chem. B*, **115**, 1021–1031 (2011). **DOI:** 10.1021/jp109599q
78. Christiaan Richter and Charles A. Schmittenmaer, "Exciton-like Trap States Limit Electron Mobility in TiO₂ Nanotubes" *Nature Nanotechnol.* **5**, 769–772 (2010). **DOI:**10.1038/nnano.2010.196
77. Alan B. True, Konstanze Schroeck, Timothy A. French, and Charles A. Schmittenmaer, "THz Spectroscopy of Histidine Enantiomers and Polymorphs." *Int'l Journal of Infrared, Millimeter, and THz Waves*, **32**, 691–698 (2010). **DOI:** 10.1007/s10762-010-9645-9
76. William R. McNamara, Rebecca L. Milot, Hee-eun Song, Robert C. Snoeberger III, Victor S. Batista, Charles A. Schmittenmaer, Gary W. Brudvig, Robert H. Crabtree, "Water-Stable, Hydroxamate Anchors for Functionalization of TiO₂ Surfaces with Ultrafast Interfacial Electron Transfer." *Energy Environ. Sci.* **3**, 917–923 (2010). **DOI:** 10.1039/c001065k

75. Shayne M. Harrel, Rebecca L. Milot, James M. Schleicher, and Charles A. Schmuttenmaer, "Influence of Free-carrier Absorption on Terahertz Generation from ZnTe(110)." *J. Appl. Phys.* **107**, 033526 (2010). DOI:10.1063/1.3296064
74. Jason B. Baxter and Charles A. Schmuttenmaer, "Electron Dynamics in Bulk ZnO Measured by Terahertz Spectroscopy II: Transient Photoconductivity." *Phys. Rev. B*, **80**, 235206 (2009). DOI: 10.1103/PhysRevB.80.235206
73. Jason B. Baxter and Charles A. Schmuttenmaer, "Electron Dynamics in Bulk ZnO Measured by Terahertz Spectroscopy I: Intrinsic Conductivity." *Phys. Rev. B*, **80**, 235205 (2009). DOI: 10.1103/PhysRevB.80.235205
72. Gonghu Li, Christiaan P. Richter, Rebecca L. Milot, Lawrence Cai, Charles A. Schmuttenmaer, Robert H. Crabtree, Gary W. Brudvig, and Victor S. Batista, "Synergistic Effect between Anatase and Rutile TiO₂ Nanoparticles in Dye-Sensitized Solar Cells." *Dalton Transactions*, 10078–10085 (2009). DOI: 10.1039/b908686b
71. William R. McNamara, Robert C. Snoeberger III, Gonghu Li, Christiaan Richter, Laura J. Allen, Rebecca L. Milot, Charles A. Schmuttenmaer, Robert H. Crabtree, Gary W. Brudvig, Victor S. Batista, "Hydroxamate Anchors for Water-Stable Attachment to TiO₂ Nanoparticles." *Energy Environ. Sci.*, **2**, 1173–1175 (2009). DOI: 10.1039/b910241h
70. James M. Schleicher, Shayne M. Harrel, and Charles A. Schmuttenmaer, "Effect of Spin-Polarized Electrons on THz Emission from Photoexcited GaAs." *J. Appl. Phys.*, **105**, 113116 (2009). DOI: 10.1063/1.3133093
69. William R. McNamara, Robert C. Snoeberger III, Gonghu Li, James M. Schleicher, Clyde W., Macarena Poyatos, Charles A. Schmuttenmaer, Robert H. Crabtree, Gary W. Brudvig and Victor S. Batista, "Acetylacetonate Anchors for Robust Functionalization of TiO₂ Nanoparticles With Mn(II)-Terpyridine Complexes." *J. Am. Chem. Soc.*, **130**, 14329–14338 (2008).
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62. Jason B. Baxter and Charles A. Schmuttenmaer, “Sub-picosecond Carrier Dynamics in ZnO Nanowires and Films Measured by Time-Resolved THz Spectroscopy.” *Ultrafast Phenomena XV*, D. Jonas, P. Corkum, R. J. D. Miller, and A. Wiener, Eds., 766–768 (Springer-Verlag, Berlin, 2007).
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* Work identified with an asterisk indicates that it was not carried out in my labs at Yale.

Invited Talks Pending

177. “Probing Transient Photoconductivity in Nanostructured Materials using THz Spectroscopy.” Terahertz Science and Technology Workshop, Newport, RI, May 23 – 26, 2017.
176. “Probing Transient Photoconductivity in Nanostructured Materials using THz Spectroscopy.” University at Buffalo, Physics Colloquium, May 2, 2017.
175. “Probing Transient Photoconductivity in Nanostructured Materials using THz Spectroscopy.” Spring 2017 Meeting of the APS New England Section, Worcester, MA, April 14 – 15, 2017.
174. “Archimedean Spiral Metamaterials and their Potential Application for Terahertz-Spectroscopy of Chiral Molecules.” OTST 2017, London, England, April 2 – 6, 2017.
173. “THz Spectroscopy: Studying Carrier Dynamics and Solar Energy Conversion in Nanostructured Materials.” Chemistry Colloquium, University of New Hampshire, March 7, 2017.

Invited Talks Given

172. “Probing Transient Photoconductivity in Nanostructured Materials using THz Spectroscopy.” International Workshop on Terahertz Technology (IWOTT 2017), Salt Lake City, Utah, February 4 – 6, 2017.
171. “THz Spectroscopy: Studying Carrier Dynamics and Solar Energy Conversion in Nanostructured Materials.” Chemistry Seminar, Purdue University, October 19, 2016.
170. “THz Time-Domain Spectroscopy.” International Conference on Infrared and Millimeter Waves – THz (IRMMW-THz), Copenhagen, Denmark, September 24, 2016.
169. “Terahertz Spectroscopic Polarimetry of Archimedean Spiral Arrays: Experiments and Simulations.” International Microwave Symposium IMS2016, San Francisco, California, May 22-27, 2016.
168. “THz Spectroscopy: Studying Carrier Dynamics and Solar Energy Conversion in Nanostructured Materials.” Virginia Tech, Department of Physics Colloquium, March 25, 2016.
167. “THz Spectroscopy: Studying Carrier Dynamics and Solar Energy Conversion in Nanostructured Materials.” National University of Singapore Nanoscience and Nanotechnology Institute (NUSNNI), March 18, 2016.
166. “THz Spectroscopy: Studying Carrier Dynamics and Solar Energy Conversion in Nanostructured Materials.” Molecules & Materials for Artificial Photosynthesis Symposium, Cancun, Mexico, February 25 – 28, 2016.
165. “Terahertz Spectroscopic Polarimetry of Archimedean Spiral Arrays: Experiments and Simulations.” Okinawa Institute of Science and Technology, Japan, October 5, 2015.
164. “Terahertz Spectroscopic Polarimetry of Archimedean Spiral Arrays: Experiments and Simulations.” Kobe University, Department of Chemistry, Kobe, Japan, September 29, 2015.

163. “Using Time-Resolved THz Spectroscopy to Study Carrier Dynamics and Solar Energy Conversion in Nanostructured Materials.” Keynote Lecture, International Conference on Infrared and Millimeter Waves – THz (IRMMW-THz), Hong Kong, China, August 23 – 28, 2015.
162. “THz-TDS Spectroscopic Polarimetry and Studies of Amino Acid Crystals.” Plenary Lecture, Graduate School Solvation Science, Bochum, Germany, May 25 – 29, 2015.
161. “Using Time-Resolved THz Spectroscopy to Study Carrier Dynamics and Solar Energy Conversion in TiO₂ Nanotubes and Other Nanostructured Materials.” Yale University Energy Sciences Institute, West Haven, CT, May 6, 2015.
160. “Tutorial: THz Studies of Carrier Dynamics in Nanomaterials.” OTST 2015, San Diego, CA, March 8 – 13, 2015.
159. “THz Spectroscopy: Studying Carrier Dynamics and Solar Energy Conversion in Nanostructured Materials and Progress Toward THz VCD.” Physics Colloquium, Worcester Polytechnic Institute, October 13, 2014.
158. “Carrier Injection and Dynamics from Photoexcited Transition Metal Containing Porphyrins.” SPIE, San Diego, CA, August 17 – 21, 2014.
157. “THz Spectroscopy: Studying Carrier Dynamics and Solar Energy Conversion in Nanostructured Materials and Progress Toward THz VCD.” Kyoto University, Kyoto, Japan, July 18, 2014.
156. “Using Time-Resolved THz Spectroscopy to Study Carrier Dynamics and Solar Energy Conversion in TiO₂ Nanotubes and Other Nanostructured Materials.” Workshop on Ultrafast Dynamics in Nanoscale Systems, Okinawa Institute for Science and Technology, Okinawa, Japan, July 11 – 13, 2014.
155. “Oxomanganese Catalysts for Solar Fuel Production.” DOE Solar Photochemistry Contractors Meeting (Basic Energy Sciences), Annapolis, MD, June 1 – 4, 2014.
154. “THz Spectroscopy: Studying Carrier Dynamics and Solar Energy Conversion in Nanostructured Materials and Progress Toward THz VCD.” University College, Cork, Ireland, May 29, 2014.
153. “Energy: THE Most Important Issue in the 21st Century.” Darien High School Energy Symposium, Darien, CT, May 2, 2014.
152. “THz Spectroscopy: Studying Carrier Dynamics and Solar Energy Conversion in Nanostructured Materials and Progress Toward THz VCD.” Rice University, Houston, TX March 20, 2014.
151. “Terahertz Spectroscopic Polarimetry and the Quest for THz Vibrational Circular Dichroism.” International Workshop on Terahertz Technology (IWOTT 2014), Zao, Japan, March 8 – 10, 2014.
150. “Terahertz Spectroscopic Polarimetry and the Quest for THz Vibrational Circular Dichroism.” 5th International Workshop on Far-Infrared Technologies 2014 (IW-FIRT2014), Fukui University, Japan, March 5 – 7, 2014.

149. "THz Spectroscopy: Studying Carrier Dynamics and Solar Energy Conversion in Nanostructured Materials and Progress Toward THz Vibrational Circular Dichroism." 61st Annual Pacific Conference on Spectroscopy and Dynamics, Asilomar, CA, January 30 – February 2, 2014.
148. "Using Time-Resolved THz Spectroscopy to Study Carrier Dynamics and Solar Energy Conversion in TiO₂ Nanotubes and Other Nanostructured Materials." ACS National Meeting, Division of Colloid and Surface Chemistry, Indianapolis, IN, September 8 – 12, 2013.
147. "Using the fluctuation-induced tunneling conduction (FITC) model for describing and understanding bulk charge transport in nanostructured materials." ACS National Meeting, Division of Computers in Chemistry, Indianapolis, IN, September 8 – 12, 2013.
146. "THz Spectroscopy: Studying Carrier Dynamics and Solar Energy Conversion in Nanostructured Materials and Progress Toward THz Vibrational Circular Dichroism." Texas A&M University, April 30, 2013.
145. "THz-TDS Studies of Low Frequency Modes in Organic Molecular Crystals and Progress Toward THz Vibrational Circular Dichroism." ACS National Meeting, Analytical Division, New Orleans, LA, April 7 – 11, 2013.
144. "Carrier Injection and Dynamics from Photoexcited Transition Metal Containing Porphyrins." ACS National Meeting, Inorganic Division, New Orleans, LA, April 7 – 11, 2013.
143. "Terahertz Spectroscopic Polarimetry and the Quest for THz Vibrational Circular Dichroism." University of Rochester, Institute of Optics, March 21, 2013.
142. "THz Spectroscopy: Studying Carrier Dynamics and Solar Energy Conversion in Nanostructured Materials and Progress Toward THz Vibrational Circular Dichroism." Temple University, Department of Chemistry, March 14, 2013.
141. "THz Spectroscopy: Studying Carrier Dynamics and Solar Energy Conversion in Nanostructured Materials and Progress Toward THz Vibrational Circular Dichroism." Naval Research Laboratory, Washington, D.C., November 15, 2012.
140. "THz-TDS Studies of Low Frequency Modes in Organic Molecular Crystals and Progress Toward THz Vibrational Optical Activity." Frontiers of THz Science Workshop, SLAC National Accelerator Laboratory, September 5 – 6, 2012.
139. "Using Time-Resolved THz Spectroscopy to Study Carrier Injection and Dynamics in TiO₂ and SnO₂ Nanomaterials." Cross Border Workshop on Laser Science, McGill University, Montreal, Canada, June 14 – 15, 2012.
138. "Using Time-Resolved THz Spectroscopy to Study Carrier Injection and Dynamics in TiO₂ and SnO₂ Nanomaterials." ACS National Meeting, San Diego, CA, March 25 – 29, 2012.
137. "Using Time-Resolved THz Spectroscopy to Study Carrier Dynamics and Solar Energy Conversion in TiO₂ Nanotubes and Other Nanostructured Materials." Utah State University, Department of Chemistry, March 7, 2012.

136. "Using Time-Resolved THz Spectroscopy to Study Carrier Dynamics and Solar Energy Conversion in TiO₂ Nanotubes and Other Nanostructured Materials." Georgia Institute of Technology, March 1, 2012.
135. "Using Time-Resolved THz Spectroscopy to Study Carrier Injection and Dynamics in TiO₂ and SnO₂ Nanomaterials." International Workshop in Ultrafast Chemical Physics 2008, Glasgow, Scotland, December 14 – 16, 2011.
134. "Using Time-Resolved THz Spectroscopy to Study Carrier Injection and Dynamics in High-Potential Photoanodes." Natural and Artificial Photosynthesis Conference – 2011, Rensselaer Polytechnic Institute, November 4 & 5, 2011.
133. "Using Time-Resolved THz Spectroscopy to Study Carrier Injection and Dynamics in TiO₂ and SnO₂ Nanomaterials." Massachusetts Institute of Technology, Modern Optics and Spectroscopy Series, November 1, 2011.
132. "The Role of Nanostructured Materials in Solar Energy Conversion as Probed by Time-Resolved THz Spectroscopy." Yale Institute for Nanoscience and Quantum Engineering, September 23, 2011.
131. "Using Time-Resolved THz Spectroscopy to Study Carrier Injection and Dynamics in TiO₂ and SnO₂ Nanomaterials." ACS National Meeting, Denver, CO, August 28 – September 1, 2011.
130. "Using Time-Resolved THz Spectroscopy to Study Carrier Dynamics in TiO₂ Nanotubes." Osaka University, Japan, July 29, 2011.
129. "Some Thoughts on THz-TDS Studies of Low Frequency Modes in Organic Molecular Crystals." Institute for Integrated Cell-Material Sciences (iCeMS), Kyoto University, Kyoto, Japan, July 22, 2011.
128. "THz-TDS Studies of Low Frequency Modes in Organic Molecular Crystals and Time-Resolved THz Studies of Electron Injection on Dye-Sensitized Metal Oxide Nanomaterials." NSF Workshop on THz/IR Spectroscopy, Arlington, VA, April 14 – 15, 2011.
127. "Using Time-Resolved THz Spectroscopy to Study Carrier Dynamics in TiO₂-based Nanomaterials." Spectroscopical Society of Japan, Kyoto Japan, November 18 – 19, 2010.
126. "Probing Dynamics in the Far-Infrared with THz Spectroscopy." Conference on Advanced Laser Technologies, Egmond aan Zee, the Netherlands, September 12 – 15, 2010.
125. "Using Time-Resolved THz Spectroscopy to Study Carrier Dynamics in TiO₂-based Nanomaterials." ACS National Meeting, Boston, MA, August 22 – 26, 2010.
124. "Using Time-Resolved THz Spectroscopy to Study Carrier Dynamics in TiO₂ Nanotubes." Gordon Conference on Electron Donor Acceptor Interactions, Newport, RI, August 8 – 12, 2010.
123. "Probing Dynamics in the Far-Infrared with THz Spectroscopy." University of Bochum, Bochum, Germany, February 22, 2010.

122. "Using THz Spectroscopy to Optimize Solar Energy Devices." International Workshop on Terahertz Technology (TeraTech '09), Osaka University Nakanoshima Center, Osaka, Japan, November 30 – December 3, 2009.
121. "Using THz Spectroscopy to Characterize Materials used in Alternative Solar Energy Devices." Institute for Integrated Cell-Material Sciences (iCeMS), Kyoto University, Kyoto, Japan, November 26, 2009.
120. "Using THz Spectroscopy to Optimize Solar Energy Devices." Fukui University Fukui, Japan, November 16, 2009.
119. "The Role of Terahertz Spectroscopy in Relation to the Goal of Catalytic Water Photooxidation." ACS National Meeting, Washington D.C., August 16 – 20, 2009.
118. "Probing Dynamics in the Far-Infrared with THz Absorption and Emission Spectroscopy." State Key Laboratory of Transient Optics and Photonics, Xi'an, China, June 24, 2009.
117. "Probing Dynamics in the Far-Infrared with THz Absorption and Emission Spectroscopy." International Symposium on Photoelectronic Detection and Imaging (ISPDI 2009), Beijing China, June 17 – 19, 2009.
116. "Probing Dynamics in the Far-Infrared with THz Absorption and Emission Spectroscopy." International Workshop on Terahertz Science, Osaka, Japan, November 25, 2008.
115. "Probing Dynamics in the Far-Infrared with THz Absorption and Emission Spectroscopy." Spectroscopical Society of Japan, Sendai, Japan, November 20 – 21, 2008.
114. "The Effect of Spin-Polarized Electrons on THz Emission from Photoexcited GaAs(111)." International Workshop in Ultrafast Chemical Physics 2008, Glasgow, Scotland, October 30 – 31, 2008.
113. "The Effect of Spin-Polarized Electrons on THz Emission from Photoexcited GaAs(111)." American Physical Society Division of Laser Science (DLS) Meeting, Rochester, NY, October 19 – 23, 2008.
112. "Polymorph Dependence of Far-Infrared Libron Modes in Amino Acid Crystals." Federation of Analytical Chemistry and Spectroscopy Societies (FACSS) Meeting, Reno, NV, September 28 – October 2, 2008.
111. "Probing Transient Photoconductivity in Nanostructured Materials using Time-Resolved THz Spectroscopy. Part II" Yale Institute for Nanoscience and Quantum Engineering, September 26, 2008.
110. "Polymorph Dependence of Far-Infrared Libron Modes in Amino Acid Crystals." Gordon Conference on Vibrational Spectroscopy, Mount Holyoke College in South Hadley, MA, August 3 – 8, 2008.

109. "The Effect of Spin-Polarized Electrons on THz Emission from Photoexcited GaAs(111)." XVI International Conference on Ultrafast Phenomena, Stresa, Lago Maggiore, Italy, June 9 – 13, 2008.
108. "Probing Dynamics in the Far-Infrared with THz Absorption and Emission Spectroscopy." University of Rochester, Departmental Colloquium, February 27, 2008.
107. "Enantiomeric Dependence of the Far-Infrared Spectra of Polycrystalline Tyrosine and Valine" AstraZeneca, Wilmington, DE, January 23, 2008.
106. "Probing Transient Photoconductivity in Nanostructured Materials using Time-Resolved THz Spectroscopy." The First Shenzhen International Conference on Advanced Science and Technology – Terahertz Radiation Science and Technology (1st SZCAST2007), Shenzhen, China, Nov. 18 – 23, 2007.
105. "Probing Transient Photoconductivity in Nanostructured Materials using Time-Resolved THz Spectroscopy." Yale Institute for Nanoscience and Quantum Engineering, October 26, 2007.
104. "Probing Transient Photoconductivity in Nanostructured Materials using Time-Resolved THz Spectroscopy." Kyoto University, Department of Physics, Kyoto, Japan, July 9, 2007.
103. "Probing Transient Photoconductivity in Nanostructured Materials using Time-Resolved THz Spectroscopy." NICT Workshop on THz Technology, Okinawa, Japan, July 5 – 7, 2007.
102. "Characterization of Magnetization Dynamics using THz Emission Spectroscopy." Hiroshima University, Department of Physics, Hiroshima, Japan, June 28, 2007.
101. "Probing Transient Photoconductivity in Nanostructured Materials using Time-Resolved THz Spectroscopy" Royal Netherlands Academy of Arts and Sciences Academy Colloquium "TeraHertz Science", June 15 – 16, 2007.
100. "Probing Transient Photoconductivity in Nanostructured Materials using Time-Resolved THz Spectroscopy" RIKEN Research Institute, Sendai, Japan, June 7, 2007.
99. "Intramolecular Charge Transfer Probed by THz Spectroscopy" Kobe University, Department of Chemistry, Kobe, Japan, June 2, 2007.
98. "Probing Transient Photoconductivity in Nanostructured Materials using Time-Resolved THz Spectroscopy & Update on THz Science and Technology Network" TeraTech Annual Meeting, Tokyo, Japan, May 23, 2007.
97. "Probing Transient Photoconductivity in Nanostructured Materials using Time-Resolved THz Spectroscopy" NICT Research Institute, Tokyo, Japan, May 22, 2007.
96. "Probing Transient Photoconductivity in Nanostructured Materials using Time-Resolved THz Spectroscopy" International Bunsen Discussion on "Exploring THz Spectroscopy: From Technology to Applications" Bad Honnef, Germany, April 1 – 5, 2007.

95. "Probing Transient Photoconductivity in Nanostructured Materials using Time-Resolved THz Spectroscopy" MIT, Cambridge, MA, March 19, 2007.
94. "Probing Transient Photoconductivity in Nanostructured Materials using Time-Resolved THz Spectroscopy" CRISP Seminar Series, Yale University, New Haven, CT, February 19, 2007.
93. "Probing Transient Photoconductivity in Nanostructured Materials using Time-Resolved THz Spectroscopy" SPIE Photonics West, San Jose, CA, January 20 – 25, 2007.
92. "THz Spectroscopy" Modern Problems of Spin Dynamics International School & Workshop, Strasbourg, France, Oct 5-12, 2006.
91. "Learning New Chemistry and Physics with THz Light" Atomic and Molecular Interactions Gordon Conference, Colby-Sawyer College, NH, July 9 – 14, 2006.
90. "Learning New Chemistry and Physics with THz Light" New Scientific Possibilities with High Power THz Sources Workshop - 29/30th June 2006, Daresbury Laboratory, UK.
89. "Probing Dynamics in the Far-Infrared with THz Absorption and Emission Spectroscopy" Syracuse University, February 28, 2006.
88. "Learning New Chemistry and Physics with THz Light" SUNY Stony Brook, Department of Physics, February 20, 2006.
87. "Probing Dynamics in the Far-Infrared with THz Absorption and Emission Spectroscopy" University of Maryland, Baltimore County, February 14, 2006.
86. "Terahertz Emission Spectroscopy: From Molecular Monolayers to Magnetic Thin Films" California Institute of Technology, Department of Chemistry, December 6, 2005.
85. "Studies of Interface Polarization and Magnetization Dynamics Using Terahertz Emission Spectroscopy" TeraTech International Workshop, Osaka, Japan, November 17, 2005.
84. "Terahertz Emission Spectroscopy: From Molecular Monolayers to Magnetic Thin Films" Boston College, Department of Chemistry, October 20, 2005.
83. "Learning New Chemistry and Physics with THz Light" International Conference on Infrared and Millimeter Waves (IRMMW), Williamsburg, VA, September 19 – 23, 2005.
82. "Learning New Chemistry with Terahertz Light" ACS National Meeting, Analytical Chemistry Symposium, Washington D.C., August 28 – September 1, 2005.
81. "Progress Toward Characterization of Charge Transfer in Molecular Monolayers using Terahertz Emission Spectroscopy" ACS National Meeting, Washington D.C., Physical Chemistry Symposium, August 28 – September 1, 2005.
80. "Studies of Interface Polarization and Magnetization Dynamics Using Terahertz Emission Spectroscopy" SPIE National Meeting, San Diego, CA, August 1 – 4, 2005.

79. "Terahertz Science and Technology in the USA: Overview and Current Status", NICT, Tokyo, Japan, March 28, 2005.
78. "Learning New Chemistry and Physics with THz Light" Osaka University, Japan March 25, 2005.
77. "Probing Condensed Phase Dynamics with THz Spectroscopy" OSA Topical Meeting on Optical Terahertz Science and Technology, Orlando, Florida, March 12 – 14, 2005.
76. "Optical Pump - THz Probe Measurements in Chemistry" ILS/OSA meeting, Rochester, New York, October 10 – 14, 2004.
75. "Terahertz Emission Spectroscopy: From Molecular Monolayers to Magnetic Thin Films" University of Pennsylvania, Department of Chemistry, September 16, 2004.
74. "Scientific Applications of THz Spectroscopy" SPIE National Meeting, Denver, August 2 – 6, 2004.
73. "Learning New Chemistry and Physics with THz Light" National Renewable Energy Laboratory, Golden, CO, July 30, 2004.
72. "Learning New Chemistry and Physics with THz Light" Jefferson Lab, Newport News, VA, June 9, 2004.
71. "Transient Photoconductivity in CdSe Nanoparticles and Nanocrystalline TiO₂ as Measured by Time-Resolved Terahertz Spectroscopy" Electrochemical Society National Meeting, San Antonio, May 9 – 14, 2004.
70. "Exploring Dynamics in the Far-Infrared with THz Spectroscopy" National High Magnetic Field Lab, May 6, 2004.
69. "Exploring Dynamics in the Far-Infrared with THz Spectroscopy" Brookhaven National Lab, April 13, 2004.
68. "Terahertz Emission Spectroscopy: From Molecular Monolayers to Magnetic Thin Films" ACS National Meeting, Anaheim, March 28, 2004.
67. "Probing Dynamics in the Far-Infrared with THz Absorption and Emission Spectroscopy" IPCMS, Strasbourg, France, March 8, 2004.
66. "THz Absorption and Emission Spectroscopy: New Insights into Chemistry and Materials" Rensselaer Polytechnic Institute, Center for THz Research, December 5, 2003.
65. "Dynamics in Confined Systems", MRS Meeting, Boston, December 1-5 2003.
64. "THz Emission Spectroscopy: From Magnetic Thin Films to Molecular Monolayers" SUNY Buffalo, Department of Physics, November 18, 2003.

63. "Probing Dynamics in the Far-Infrared with THz Absorption and Emission Spectroscopy" Carnegie Mellon University, Department of Chemistry, October 28, 2003.
62. "Probing Solvent Dynamics with THz Absorption and Emission Spectroscopy" Invited Keynote speaker at IRMMW2003 The 28th Conference on Infrared and Millimeter Waves, Otsu, Japan, September 29 – October 3, 2003.
61. "Conductivity in Disordered Solids: What Can THz Spectroscopy Tell Us?", ACS National Meeting, New York, September 2003.
60. "Conductivity in Nanoparticles and Disordered Solids: What Can THz Spectroscopy Tell Us?", SPIE (Int. Soc. Opt. Eng.) 48th Annual Meeting, San Diego, August 3-8, 2003.
59. "Conductivity in CdSe Quantum Dots and TiO₂ Nanoparticles: What Can THz Spectroscopy Tell Us?", Plenary talk at the 2003 International Conference on MEMS, NANO and Smart Systems (ICMENS 2003), Banff, Alberta, Canada, July 20 - 23, 2003.
58. "Conductivity in CdSe Quantum Dots and TiO₂ Nanoparticles: What Can THz Spectroscopy Tell Us?", Department of Physics, University of Alberta, Edmonton, Alberta, Canada, July 10, 2003.
57. "Probing Dynamics in the Far-Infrared with THz Spectroscopy", Physical Sciences, Inc., Andover, MA, June 9, 2003.
56. "Solvent Influence on Intramolecular Charge Transfer", ACS National Meeting, New Orleans, March 23, 2003.
55. "Exploring Sub-picosecond Dynamics in the Far-Infrared with THz Spectroscopy." Yale University, Department of Chemistry, March 4, 2003.
54. "Exploring Sub-picosecond Dynamics in the Far-Infrared with THz Spectroscopy." University of California, Berkeley, Department of Chemistry, February 25, 2003.
53. "Directly Measuring Charge Transfer Using THz Emission Spectroscopy" University of Toronto, Photonics Research Ontario Symposium, February 5, 2003.
52. "Exploring Sub-picosecond Dynamics in the Far-Infrared with THz Spectroscopy." Texas A&M University, January 21, 2003.
51. "Using THz Spectroscopy to Measure Transient Conductivity in CdSe Quantum Dots and Nanocrystalline TiO₂." University of Colorado, Boulder, November 1, 2002.
50. "Using THz Spectroscopy to Measure Transient Conductivity in CdSe Quantum Dots and Librational Motion of Water Confined Within Reverse Micelles." Colorado State University, Fort Collins, October 31, 2002.
49. "Optical Pump – THz Probe Spectroscopy: New Insights into Chemistry and Materials." Annual ILS/OSA Meeting, Orlando FL, September 29 – October 3, 2002.

48. "The Effect of Environment on the Librational Dynamics of Hydrogen Bonding Liquids." Canadian Society for Chemistry Annual Meeting, Vancouver, British Columbia, Canada, June 1 – 5, 2002.
47. "Exploring Sub-picosecond Dynamics in the Far-Infrared with THz Spectroscopy." Ultrafast Phenomena XIII, Vancouver, British Columbia, Canada, May, 2002.
46. "Optical Pump – THz Probe Spectroscopy: New Insights into Chemistry and Materials." Modern Optics and Spectroscopy series, Harrison Spectroscopy Lab, MIT, April 2, 2002.
45. "Optical Pump – THz Probe Spectroscopy: New Insights into Chemistry and Materials." United Technologies, East Hartford, CT March 26, 2002.
44. "Using THz Spectroscopy to Probe Transient Photoconductivity and Intramolecular Electron Transfer." APS March Meeting, Indianapolis, IN, March 18 – 22, 2002.
43. "Optical Pump – THz Probe Spectroscopy: New Insights into Chemistry and Materials." University of Oregon, Departments of Chemistry, March 11, 2002.
42. "Using THz Spectroscopy to Probe Low-Frequency Intermolecular Motions in Liquids and Intramolecular Electron Transfer." Wesleyan University, Department of Chemistry, October 5, 2001.
41. "THz Spectroscopy: An Idea Whose Time has Come." Emory University and Georgia Tech, Departments of Chemistry, October 1, 2001.
40. "Using Time-Resolved THz Spectroscopy (TRTS) to Probe Transient Photoconductivity in Bulk Materials and Nanoparticles." Department of Physics, State University of New York, Buffalo, September 25, 2001.
39. "Exploring Sub-picosecond Dynamics in the Far-Infrared with THz Spectroscopy." New England Regional Meeting of the American Chemical Society, June 25, 2001.
38. "Time-resolved, frequency-dependent complex photoconductivity in GaAs and LT-GaAs as measured with time-resolved THz spectroscopy (TRTS)." Department of Physics, University of Kaiserslautern, Germany, June 12, 2001.
37. "Femtochemistry – watching molecules in reaction." German-American Frontiers of Science, Bad Homburg, Germany, June 7 - 10, 2001. Sponsored by the National Academy of Sciences and Alexander von Humboldt Foundation.
36. "Using THz spectroscopy to probe liquid dynamics and intramolecular charge transfer." University of Bochum, Germany, Department of Chemistry, June 5, 2001.
35. "Using THz Spectroscopy to Probe Low-Frequency Intermolecular Motions in Liquids and Intramolecular Electron Transfer." Naval Research Labs, March 29 2001.
34. "Using Time-Resolved THz Spectroscopy (TRTS) to Probe Transient Photoconductivity in Nanoparticles." 199th Meeting of the Electrochemical Society, March 25-30, 2001.

33. "Time-resolved, frequency-dependent complex photoconductivity in GaAs and dye-sensitized TiO₂ as measured with time-resolved THz spectroscopy (TRTS)." Yale University, Department of Applied Physics, February 21, 2001.
32. "Using THz Spectroscopy to Probe Low-Frequency Intermolecular Motions in Liquids and Intramolecular Electron Transfer." Rutgers University, February 6, 2001.
31. "Probing Collective, Low Frequency, Intermolecular Solvent Dynamics with Time-Resolved THz Spectroscopy (TRTS)." University of Houston, November 1, 2000.
30. "Using THz Spectroscopy to Probe Transient Photoconductivity and Intramolecular Charge Transfer." Rice University, October 30, 2000.
29. "Intramolecular Charge Transfer, and Transient Photoconductivity in Nanoparticles as Probed by Time-Resolved THz Spectroscopy (TRTS)." Argonne National Laboratory, October 23, 2000.
28. "Probing Low-Frequency Intermolecular Dynamics in Liquids with Time-Resolved THz Spectroscopy (TRTS)." Boston University, October 18, 2000.
27. "Probing Low-Frequency Intermolecular Dynamics in Liquids with Time-Resolved THz Spectroscopy (TRTS)." Boston College, October 17, 2000.
26. "Direct Measurement of Intramolecular Electron Transfer using THz Pulse Generation." Gordon Conference on Electron Transfer, August 13-18, 2000.
25. "Probing Collective, Low Frequency, Intermolecular Solvent Dynamics with Time-Resolved THz Spectroscopy (TRTS)." Gordon Conference on Vibrational Spectroscopy August 6-11, 2000.
24. "Probing Collective, Low Frequency, Intermolecular Solvent Dynamics with Time-Resolved THz Spectroscopy (TRTS)." University of Illinois Urbana-Champaign, Department of Chemistry, April 5, 2000.
23. "Studies of Transient Photoconductivity Using Time-Resolved THz Spectroscopy (TRTS)." University of Toronto, Photonics Research Ontario Symposium, March 8, 2000.
22. "Pushing Ultrafast Spectroscopy to New Regimes: What Can We Do with Sub-Picosecond, Far-Infrared Pulses?" Aerospace Corporation, Los Angeles, February 23, 2000.
21. "Pushing Ultrafast Spectroscopy to New Regimes: What Can We Do with Sub-Picosecond, Far-Infrared Pulses?" University of California, Los Angeles, February 22, 2000.
20. "Pushing Ultrafast Spectroscopy to New Regimes: What Can We Do with Sub-Picosecond, Far-Infrared Pulses?" University of Virginia, February 18, 2000.
19. "Measuring Intermolecular Solvent Dynamics Using Time-Resolved THz Spectroscopy (TRTS)." Michigan State University, Department of Chemistry, February 15, 2000.

18. "Studies of Transient Photoconductivity Using Time-Resolved THz Spectroscopy (TRTS)." Optical Society of America Annual Meeting, September 26 - October 1, 1999.
17. "Measuring Intermolecular Solvent Dynamics Using Time-Resolved THz Spectroscopy (TRTS)." Gordon Conference on Chemistry and Physics of Liquids, Holderness, NH, August 1-6, 1999.
16. "A Direct Measurement of Intermolecular Solvation Dynamics Using Time-Resolved THz Spectroscopy (TRTS)." 10th Annual Symposium of the Center for Photoinduced Charge Transfer, University of Rochester, July 26-29, 1999.
15. "A Direct Measurement of Intermolecular Solvation Dynamics Using Time-Resolved THz Spectroscopy (TRTS)." Brown University, Department of Chemistry, April 8, 1999.
14. "Direct Probing of Low-Frequency Intermolecular Modes in Liquids Using Femtosecond THz Pulse Spectroscopy." American Physical Society Annual March Meeting, Atlanta, GA March 1999.
13. "Pump-Probe Spectroscopy in the Far-Infrared Region of the Spectrum: Intermolecular Solvation Dynamics.", University of Massachusetts, Amherst, October 22, 1998.
12. "A Direct Measurement of Intermolecular Solvation Dynamics Using Femtosecond-THz Pulse Spectroscopy." Duquesne University, Pittsburgh, PA, October 2, 1998.
11. "Time-Resolved THz Studies of Liquid Dynamics." American Physical Society Annual March Meeting, Los Angeles, CA March 19, 1998.
10. "Far-Infrared Studies of Polar Liquids and Their Mixtures Using Femtosecond THz Spectroscopy." Brookhaven National Laboratory, Upton, New York, February 11, 1998.
9. "Progress Toward Time-Resolved THz Studies of Liquid Dynamics." 61st Okazaki Conference, Okazaki, Japan, January 23, 1998.
8. "Using Femtosecond THz Pulse Spectroscopy to Probe Low Frequency Dynamics." Optical Society of America Annual Meeting, October 12-17, 1997.
7. "Far-Infrared Spectroscopy and Associated Dynamics Measured with Femtosecond THz Pulses." Conference on Lasers and Electro-Optics / Quantum Electronics and Laser Science Conference (CLEO/QELS), May 21, 1997.
6. "Femtosecond THz Pulses: A Unique Tool for Far-Infrared Spectroscopy and Dynamics." University of Colorado, Boulder, April 25, 1997.
5. "Far-Infrared Spectroscopy and Associated Dynamics Measured with Femtosecond THz Pulses." Colorado State University, Fort Collins, April 24, 1997.
4. "Femtosecond Time Domain Terahertz Studies of Liquids." Wesleyan University, Department of Physics, November 16, 1995.

3. "Studies of Polar Liquids Using Time Domain THz Pulses." New England Regional Meeting of the American Chemical Society, October 24, 1995.
2. "Femtosecond Time Resolved Photoemission Study of Hot Electron Relaxation at the GaAs(100) Surface." New England Regional Meeting of the American Chemical Society, October 24, 1995.
1. "Femtosecond, Time Resolved, Two Photon Photoemission at Metal and Semiconductor Surfaces." Yale University, Department of Applied Physics, September 23, 1994.