

Curriculum Vitae

Lin X. Chen

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Chemical Science and Engineering Division
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Education

- 1982 B.Sc. in Chemistry with Honors, *Peking University*, Beijing, China;
1987 Ph.D. in Physical Chemistry, Department of Chemistry, *The University of Chicago*, Chicago, Illinois, Research Advisor: Graham R. Fleming
Thesis Title: Ultrafast Studies of the Dynamics of Peptides and Proteins
1988-1989 Post-doctoral Research Associate, Department of Chemistry, *The University of California at Berkeley*, Berkeley, California, Research Advisors: Herbert L. Strauss (deceased) and Robert G. Snyder (deceased).

Professional Employment

- 1989-1994 Assistant Chemist (Assistant Professor ranking), Argonne National Laboratory
1994-2007 Chemist (Professor/Associate Professor ranking), Argonne National Laboratory
2007 - Senior Chemist (Professor Ranking), Argonne National Laboratory
2007 - Professor of Chemistry, Chemistry Department, Northwestern University

Professional Affiliations

American Chemical Society Sigma Xi Society
American Physical Society American Association for the Advancement of Science

Honors and Awards

Fellow, American Association for the Advancement of Science, 2012.
Distinguished Performance Award, Argonne National Laboratory, 2002.
NATO fellowship 1986.
Excellent Student Award, 1979-1981, Peking University.

Professional Activities

Advisory Committee memberships:

Research Council member, Department of Energy, Basic Energy Sciences, Chemical,

Geological and Biological Sciences, 2010 - 2014;
Committee of Visitors, Department of Energy, Basic Energy Sciences, Chemical, Geological and Biological Sciences, 2010;
Program Committee member, International Conference on Ultrafast Phenomena, 2010 - 2014;
Advisory Committee member, International π -functional Materials Conference, 2011- ;
Complexity Workshop, Argonne National Laboratory, October 2010;
Editorial Board of *Chemical Physics Letters*, 2014 – 2016;
Joint Board-Council Committee on Publications, American Chemical Society, 2014 –.

Review panel member and reviewer:

Proposals for Advanced Photon Source (Argonne National Laboratory), Advanced Light Source (Lawrence Berkeley Laboratory), and Linear Coherent Light Source (Stanford Linear Accelerator Center);
Condense Phase Chemical Physics, Pacific North National Laboratory, 2008; National Renewable Energy Laboratory, 2012, Chemical Physics, PULSE Center, SLAC, 2011;
DOE-BES Lehman Review for X-ray Pump-probe facility at LCLS, Stanford.
Chemistry Division, Materials Science Divisions and Career Program of National Science Foundation, PI proposals for U.S. Department of Energy, USDA Photosynthesis Research, Swiss National Science Foundation, Ireland National Science Foundation, Danish Science Foundation;

Reviewers for Science, Nature, Journal of American Chemical Society, Proceedings of National Academy of Sciences, Journal of Physical Chemistry A/B, Journal of Chemical Physics, Chemical Physics Letters, Photochemistry and Photobiology, Biophysical Journal, Applied Physics Letters, Journal of Applied Physics, Physical Chemistry Chemical Physics, Chemical Communication, New Scientists, Nature Materials, Nature Science Reports

Committees:

Seminar Committee Chair, 1996-1998, Chemistry Division, Argonne National Laboratory;
Library Committee, 1990 – 1994, Chemistry Division, Argonne National Laboratory;
Laser Safety Committee, 1993 – 1998, Chemistry Division, Argonne National Laboratory;
MGM Committee Chair, 1995 -1996, Chemistry Division, Argonne National Laboratory;
APS Committee, 1995, Chemistry Division, Argonne National Laboratory;
User Organization Committee, 2001 – 2004, Advanced Photon Source;
Strategic Planning Panel Members, Chemical Processes for Energy Conversion and Materials Discovery, Argonne National Laboratory, 2008-2009
Safety Committee, Department of Chemistry, Northwestern University, 2014 -.

Meeting organizer:

Co-organizer of the Workshops on “Self-assembly: from Molecules to Materials” and “*In situ* Chemical Characterization Using Synchrotron Radiation” 2003 Users Meeting at the APS;
Co-organizer for Workshop “Time-domain X-ray Science”, the Advanced Photon Source,
Co-organizer, Symposium on Inorganic and Organic Solar Cells, ACS Fall Meeting, 2010;
Co-organizer for Pacificchem 2005, 2010, 2015, Symposium on “Synchrotron Radiation Applications in Chemistry” and it’s successors;
Co-chair for the Workshop on Exploring Coherent Processes in Sustainable Energy Research, 2016, Chemical, Biological and Geological Sciences, Basic Energy Science, US Department of Energy

Workshop attendee/presenter:

US Department of Energy, “Solving Science and Energy Grand Challenges with Next

Generation Photon Sources” (“Photon Workshop”), October 26 - 28, 2008;
US Department of Energy “Basic Research Needs for Solar Energy Utilization”, April 2004;
University of Wisconsin workshop on “Plans for the Wisconsin Free Electron Laser Project:
Preliminary Design Performance and Scientific Opportunities”;
Lawrence Berkeley Laboratory Workshop, “Science for a New Class of Soft X-ray Light
Sources”;

Co-team Leader of Argonne-Northwestern University Solar Energy Research (ANSER) Center.

Thesis Defense Committee Member abroad

University of Copenhagen, Physics Department, Kasper Skjer, 2013,
University of Lund, Chemical Physics, Tobias Harlang, 2015 as the “Opponent”.

Teaching:

Chem-342-3, Physical Chemistry, Statistical Thermodynamics and Kinetics, Northwestern
University, 2008-2012;
Chem-445, Advanced Contemporary Spectroscopy, Department of Chemistry, Northwestern
University, 2013-2015
Chem-443, Kinetics, Department of Chemistry, Northwestern University, 2016-.

Research Grants Awarded

FY1990-2015 Principal investigator and co-investigator for Laboratory Directed Research and
Development Grants, accumulated amount: > \$4,000,000.

FY1996-1998 Principal investigator for New Facility Initiative Grant: \$790,000, The U. S.
Department of Energy (Operating: \$210,000, Equipment: \$580,000)

FY2005 Co-principal Investigator of University of Chicago/Argonne National Laboratory
Research Seed Grant, \$100,000.

FY2007 Co-PI on 3D Structural Characterization Grant from US Civilian Research and
Development Fund, \$11,000

FY2008 PI of a Mid-scale Instrumentation Grant US DOE-BES, \$2.2M

FY2009 Co-PI and Subtask co-Leader of ANSER Center, one of the EFRCs
supported by US DOE-BES, \$19M for five years.

FY2010 Intel Innovation Grant, \$225,000.

FY2012-6 Co-PI, NSF Sustainable Energy Pathways, \$440,000.

FY2013-6 PI, LDRD “Plastic Leaves” \$596,000

- FY2014-7 PI, NSF Chemistry, \$270,000.
- FY2014-8 Co-PI and Subtask co-Leader of ANSER Center, one of the EFRCs supported by US DOE-BES, ~\$15M for four years.
- FY2014-7 PI (9 co-PI) DOE Ultrafast Science, \$2,700,000 (NU portion for Ratner, Schatz, Seideman, \$810,000, Argonne portion for Schaller \$330,000).
- FY2015-20 PI, NIH R01 PI \$1,545,000.

Research Activities

Present

Excited/transient state structure, dynamics and function correlations in transition metal complexes for solar fuel and electricity generation

- *Molecular movies and snapshots by pulsed x-rays*
- *Photocatalysis, dye sensitized solar cell, and protein/enzyme mechanisms*
- *Electronic coherence/control of energy and electron transfer*

Electronic processes in organic materials for photovoltaic applications

- *Photoinduced interfacial electron/energy transfer in conducting polymers in different environments*
- *Correlating molecular packing in thin films with the device properties*

Effects of electronic and nuclear coherence in photochemistry

- *Electronic coherence in transition metal complexes and their effect in photoinduced energy and electron transfer*
- *Coherent energy and electron transfer at the nanoparticle interface*

Revealing metalloprotein transient structures during their functions

- *Simultaneous characterization of metal center active site and protein structures on the time scales from femtosecond to millisecond.*
- *Correlating transient structures with reaction mechanisms*

1988 - 1989

Structural and dynamic disorder in long chain molecules using FTIR, Raman spectroscopies and theoretical normal mode analysis.

1983 - 1987

Protein motions and dynamics studied by ultrafast transient laser spectroscopy and molecular dynamics simulation using intrinsic fluorescent amino acid probes.

1982 - 1983

Electrostatic interactions in proteins studied by semi-synthesis and molecular mechanical calculations.

Patent

SINGLE-BUNCH SYNCHROTRON SHUTTER

J. R. Norris, J. Tang, L. Chen and M. Thurnauer, U.S. Patent No. 5,225,788, DOE Case No. S-71,161 (Issued July 6, 1993)

Current Collaborators

Dr. David Tiede, Chemical Science and Engineering Division, Argonne National Laboratory;
Dr. Karen Mulfort, Chemical Science and Engineering Division, Argonne National Laboratory
Dr. Guy Jennings, Advanced Photon Source, Argonne National Laboratory;
Dr. Xiaoyi Zhang, Advanced Photon Source, Argonne National Laboratory;
Dr. Qingyu Kong, Advanced Photon Source, Argonne National Laboratory;
Professor Luping Yu, The University of Chicago;
Professor Felix Castellano, Bowling Green State University;
Professors Tobin Marks, Macouri Kanatzdis, Michael Wasielewski, Fraser Stoddart, Mark Ratner,
Goerge Schatz, Tamar Seideman, Northwestern University;
Professor Xiaosong Li, Department of Chemistry, University of Washington;

Postdoctoral/Graduate Students/Guest Appointees Supervised/Co-supervised

Graduate Students

Mr. Darren Hsu, Northwestern University, 2015 –
Mr. Daniel Kwasnieski, Northwestern University, 2015 -
Mr. Dolev Rimerman, Northwestern University, 2015 –
Mr. Matthew Kirschner, Northwestern University, 2014 – (with Richard Schaller)
Mr. Matthew Kelley, Northwestern University, 2014 – (with George Schatz)
Mr. Thomas Fauvell, Northwestern University, 2013 –
Ms. Jiyun Hong, Northwestern University, 2013 –
Mr. Eric Manley, Northwestern University, 2012 – (with Tobin Marks)
Ms. Meghan Orr, Northwestern University, 2012 – 2014, M.Sc.;
Mr. Nicholas E. Jackson, Northwestern University, 2011- (with Mark Ratner)
Ms. Megan Shelby, Northwestern University, 2010- (with Brian Hoffman)
Mr. Nicolas Dunn, Northwestern University, 2010 – 2011 (with Richard Schaller)
Ms. Sylvia Lou, Northwestern University, 2009 – (with Tobin Marks)
Ms. Nosheen Gothard, Northwestern University, 2008-2011(with Fraser Stoddart);
Dr. Michael Mara, Northwestern University, 2008- 2013, Ph.D. (Postdoc with E. Solomon)
Dr. Brian Rolczynski, Northwestern University, 2008- 2012, Ph.D. (Postdoc with G. Engel)

Postdoctoral Associates

Dr. Pyosang Kim, Ph. D. Yonsei University, 2015 -
Dr. Ryan Hadt, Ph.D. Stanford University, 2015 –
Dr. Dugan Hayes, Ph.D., The University of Chicago, 2013 -
Dr. Kelly Fransted, Ph.D., The University of Chicago, 2012 – 2015;
Dr. Zhiwei Lin, Ph.D., Tulane University, 2012 – 2014;
Dr. Michal Harpham, Ph.D., Colorado State University, 2010 – 2013

Dr. Jier Huang, Ph.D., Emory University, 2010 – 2013;
Dr. Sung Cho, Ph.D., Yonsei University, Korea, 2009 - 2012
Dr. Andrew Stickrath, Ph. D., University of Michigan, 2009 – 2012;
Dr. Jodi Szarko, Ph.D. University of Colorado, 2007- 2013
Dr. Jenny Lockard, Ph.D. UCLA, 2008-2010;
Dr. Jianchang Guo, Ph.D. Emory University, 2006-2009;
Dr. Dmitrii Polshakov, Ph.D., Ohio State University, 2005 - 2006;
Dr. Erik Wasinger, Ph.D., Stanford University, 2005 - 2007;
Dr. Xiaoyi Zhang, Ph.D., University of Maryland, 2005 - 2007;
Dr. George B. Shaw, Ph.D., North Carolina University, 2002 - 2004;
Dr. Wighard Jäger, Ph.D., University of Erlanger, 1997-1999;

Visiting and Undergraduate Students

Mr. Yuchao Hu, XiAn Jiaotong University, 2014 – 2015;
Ms. Shiyu Yao, Jilin University, 2014 – 2015;
Mr. Richard Mazukis, Northwestern University, 2013-2015;
Ms. Han Lin Rong, Northwestern University, 2013- 2014;
Ms. Yan Wen, Lanzhou University, 2013 – 2014;
Mr. Chi Hang Lee, Illinois Institute of Technology, 2004 - 2008;

Visiting Scientists

Prof. Munetaka Iwamura, Toyama University, Japan 2015;
Dr. Kristoffer Haldrup, Denmark Technology University, Denmark, 2011-2012;
Dr. Grigory Smolentsev, Southern Federal University, Russia, 2007 -2008;
Dr. Tao Liu, High Energy Physics, Beijing Synchrotron Source, Beijing, 2000 - 2002;
Dr. Bipin Bihari, Ph.D., Indian Institute of Technology, 1992-1995.

Publications

163. Pyrazolate-Bridged Pt(II) Dimers with Tunable Pt-Pt Distances Enable Control Over the Excited State Properties and Dynamics, Samantha E. Brown-Xu, Matthew S. Kelley, Kelly A. Fransted, Felix N. Castellano, Lin X. Chen, in press *J. Phys. Chem. A*.
162. Molecular Structure Controlled Transitions Between Free Charge Generation and Trap Formation in a Conjugated Copolymer Series, Bill Pandit, Tianyue Zheng, Nicholas E. Jackson, Eric F. Manley, Meghan E. Orr, Thomas Fauvell, Samantha E. Brown-Xu, Luping Yu, Lin X. Chen, in press *J. Phys. Chem. C*.
161. Electron Injection from Copper Diimine Sensitizers into TiO₂: Structural Effects and Their Implications for Solar Energy Conversion Devices, Michael W. Mara, David N. Bowman, Onur Buyukcakir, Megan L. Shelby, Kristoffer Haldrup, Jier Huang, Michael R. Harpham, Andrew B. Stickrath, Xiaoyi Zhang, J. Fraser Stoddart, Ali Coskun, Elena Jakubikova, Lin X. Chen, *J. Am. Chem. Soc.* 137, 9670- 9684 (2015).
160. Wide Bandgap OPV Polymers Based on Pyridinonedithiophene and Their Use as an

- Efficient Energy Relay in Ternary Organic Solar Cells, Alexander M Schneider, Luyao Lu, Eric F. Manley, Tianyue Zheng, Tao Xu, Tobin J. Marks, Lin X. Chen, and Luping Yu. *Chem. Sci.* 6, 4860-4866 (2015).
159. Chapter 9. X-ray Transient Absorption Spectroscopy, L. X. Chen, in "X-Ray Absorption and X-Ray Emission Spectroscopy: Theory and Applications", Vol. I, Jeroen A. van Bokhoven and Carlo Lamberti, Eds., (Invited) pp. 213-250, Wiley (2015).
 158. Conformational Order in Aggregates of Conjugated Polymers, Nicholas E. Jackson, Kevin L. Kohlstedt, Brett M. Savoie, Monica Olvera de la Cruz, George C. Schatz, Lin X. Chen, Mark A. Ratner, *J. Am. Chem. Soc.* 137, 6254-6262 (2015)
 157. A Simple Index for Characterizing Charge Transport in Molecular Materials, Nicholas E. Jackson, Brett M. Savoie, Lin X. Chen, and Mark A. Ratner, *J. Phys. Chem. Lett.* 6, 1018-1021 (2015).
 156. The Next Breakthrough for Organic Photovoltaics? Nicholas E. Jackson, Brett M. Savoie, Tobin J. Marks, Lin X. Chen, and Mark A. Ratner, *J. Phys. Chem. Lett.* 6, 77-84 (2015).
 155. Solution Phase Exciton Diffusion Dynamics of a Charge-transfer Copolymer PTB7 and a Homopolymer P3HT, Sung Cho, Brian S. Rolczynski, Tao Xu, Luping Yu, Lin X. Chen, *J. Phys. Chem. B.* 119, 7447-7456 (2015).
 154. Roles of Quinoidal Character and Regioregularity in Determining the Optoelectronic and Photovoltaic Properties of Conjugated Copolymers, Tianyue Zheng, Luyao Lu, Nicholas E. Jackson, Sylvia J. Lou, Lin X. Chen, Luping Yu, *Macromolecules*, 47, 6252-6259 (2014)
 153. Interplays of Excited State Structures and Dynamics in Copper(I) Diimine Complexes: Implications and Perspectives, M. W. Mara, K. A. Fransted, L.X. Chen, (Invited) *Coord. Chem. Rev.*, 282, 2-18 (2015).
 152. "Supersaturated" Self-Assembled Charge-Selective Interfacial Layers for Organic Solar Cells, C. K. Song, K. A. Luck, N. Zhou, L. Zeng, H. M. Heitzer, E. F. Manley, S. Goldman, L. X. Chen, M. A. Ratner, M. J. Bedzyk, R. P. H. Chang, M. C. Hersam, T. J. Marks, *J. Am. Chem. Soc.* 136, 17762-17773 (2014).
 151. Substantial photovoltaic response and morphology tuning in benzo[1,2-b:6,5-b']-dithiophene (bBDT) molecular donors, Tobias Harschneck, Nanjia Zhou, Eric F. Manley, Sylvia J. Lou, Xinge Yu, Melanie R. Butler, Amod Timalisina, Riccardo Turrisi, Mark A. Ratner, Lin X. Chen, Robert P. H. Chang, Antonio Facchetti, Tobin J. Marks, *Chem. Comm.* 50, 4099-4101(2014).
 150. Strong Steric Hindrance Effect on Ground State, Excited State, and Charge Separated State Properties of Cu^I-Diimine Complex Captured by X-ray Transient Absorption Spectroscopy, J. Huang, M. W. Mara, A. B. Stickrath, O. Kokhan, M. R. Harpham, K. Haldrup, M. L. Shelby, X. Zhang, R. Ruppert, J. P. Sauvage, L. X. Chen, *Dalton Trans*, (Invited, cover

story) 43, 17615-17623 (2014).

149. Cobaloxime-Based Artificial Hydrogenases, Marine Bacchi, Gustav Berggren, Jens Niklas, Elias Veinberg, Michael W. Mara, Megan L. Shelby, Oleg G. Poluektov, Lin X. Chen, David M. Tiede, Christine Cavazza, Martin J. Field, Marc Fontecave, Vincent Artero, *Inorg. Chem.* 53, 8071-8082 (2014).
148. Establishing Structure/Property Relationship between Low Bandgap Polymers and Their Organic Solar Cells Performance, Tao Xu, Luyao Lu, Tianyue Zheng, Jodi M. Szarko, Alexander Schneider, Lin X. Chen, Luping Yu, *Adv. Func. Mater.*, 24, 3432–3437 (2014).
147. The Mesoscopic Features of Charge Generation in Organic Semiconductors, Brett M. Savoie, Nicholas E. Jackson, Lin X. Chen, Tobin J. Marks, Mark A. Ratner, *Acc. Chem. Res.* 47, 3385–3394 (2014).
146. Lock-Arm Supramolecular Ordering: A Molecular Construction Set for Cocrystallizing Organic Charge Transfer Complexes, Anthea K. Blackburn, Andrew C.-H. Sue, Alexander K. Shveyd, Dennis Cao, Alok Tayi, Ashwin Narayanan, Brian S. Rolczynski, Jodi M. Szarko, Ozgur A. Bozdemir, Rie Wakabayashi, Jessica A. Lehrman, Bart Kahr, Lin X. Chen, Majed S. Nassar, Samuel I. Stupp, J. Fraser Stoddart, *J. Am. Chem. Soc.* 136, 17224–17235 (2014).
145. Recent Advances of Ultrafast X-ray Spectroscopy in Chemical Sciences, L. X. Chen, X. Zhang, M. L. Shelby, (Invited Mini Review) *Chem. Sci.* 5, 4136-4152 (2014).
144. New Insight into Metalloporphyrin Excited State Structures and Axial Ligand Binding from X-ray Transient Absorption Spectroscopic Studies, M. L. Shelby, M. W. Mara, L. X. Chen, (Invited) *Coord. Chem. Rev.*, 277, 291-299 (2014).
143. Mesoscopic Network Formation in Disordered Organic Materials, Savoie, B.M.; Kohlstedt, K.L.; Jackson, N.E.; , Chen, L.X.; Marks, T.J.; Ratner, M.A., *Proc. Natl. Acad. Sci. USA*, 111, 10055-10060(2014).
142. Ultrafast Structural Dynamics of Cu(I)-Bicinchoninic Acid and Their Implications for Solar Energy Applications, Kelly A. Fransted, Nicholas E. Jackson, Ruifa Zong, Michael W. Mara, Jier Huang, Michael R. Harpham, Megan L. Shelby, Randolph P. Thummel, and Lin X. Chen, *J. Phys. Chem. A* 118, 10497–10506 (2014).
141. Highly Accurate Excited-State Structure of [Os(bpy)₂dc bpy]₂⁺ Determined by X-ray Transient Absorption Spectroscopy, Xiaoyi Zhang, Sophie E. Canton, Grigory Smolentsev, Carl-Johan Wallentin, Yizhu Liu, Qingyu Kong, Klaus Attenkofer, Andrew. B. Stickrath, Michael W. Mara, Lin X. Chen, Kenneth Wärnmark, Villy Sundström, *J. Am. Chem. Soc.* 136, 8804–8809 (2014).
140. Solubility Energetics of Non-Electrolytes: An Ab-Initio Approach, Jackson, N.E.; Chen, L.X.; Ratner, M.A. *J. Phys. Chem. B* 118, 5194–5202 (2014).

139. Effects of Intramolecular Exciton Dynamics in Charge-Transfer Polymer Organic Photovoltaic Devices, B. S. Rolczynski, J. M. Szarko, H. J. Son, Y. Liang, L. Yu, L. X. Chen, *J. Phys. Chem. Lett.* **5**, 1856–1863 (2014).
138. Structural and Conformational Dispersion in the Rational Design of Conjugated Polymers, Jackson, N.E.; Savoie, B.M.; Kohlstedt, K.L.; Chen, L.X.; Ratner, M.A. *Macromolecules* **47**, 987-992 (2014).
137. Photovoltaic Functions of Intramolecular Charge Transfer Copolymers: Exciton and Charge Transfer Dynamics Studies of PTB7, Jodi M. Szarko, Brian S. Rolczynski, Sylvia J. Lou, Tao Xu, Tobin J. Marks, Luping Yu, Lin X. Chen, *Adv. Func. Mater.*, **24**, 10-26 (2014).
136. Ab Initio Modeling of Excitonic and Charge-Transfer States in Organic Semiconductors: The PTB1/PCBM Low Band Gap System, Itamar Borges, Jr., Adélia J. A. Aquino, Andreas Köhn, Reed Nieman, William L. Hase, Lin X. Chen, and Hans Lischka, *J. Am. Chem. Soc.* **135**, 18252–18255 (2013).
135. Photochemical Processes Revealed by X-ray Transient Absorption Spectroscopy, Lin X. Chen, Xiaoyi Zhang, (Invited Perspective article) *J. Phys. Chem. Lett.* **4**, 4000-4013 (2013).
134. Polymer solar cells with enhanced fill factors, Xugang Guo, Nanjia Zhou, Sylvia J. Lou, Jeremy Smith, Daniel B. Tice, Jonathan W. Hennek, Rocío Ponce Ortiz, Juan T. Lopez Navarrete, Shuyou Li, Joseph Strzalka, Lin X. Chen, Robert P. H. Chang, Antonio Facchetti, Tobin J. Marks, *Nature Photonics*, **7**, 825–833(2013).
133. Morphology-Performance Relationships in High-Efficiency All-Polymer Solar Cells, Nanjia Zhou, Hui Lin, Sylvia J. Lou, Xinge Yu, Peijun Guo, Eric F. Manley, Stephen Loser, Patrick Hartnett, Hui Huang, Michael R. Wasielewski, Lin X. Chen, Robert P. H. Chang, Antonio Facchetti, Tobin J. Marks, *Adv. Energy Mater.* DOI: 10.1002/aenm.201300, (2013).
132. Electronic and Nuclear Structural Snapshots in Ligand Dissociation and Recombination Processes of Iron Porphyrin in Solution: A Combined Optical/X-ray Approach, Michael W. Mara, Andrew B. Stickrath, Megan L. Shelby, Mike R. Harpham, Jier Huang, Xiaoyi Zhang, and Lin X. Chen *J. Phys. Chem. B* **117**, 14089-98 (2013)
131. X-ray transient absorption structural characterization of the ³MLCT triplet excited state of cis-[Ru(bpy)₂(py)₂]²⁺, Elisa Borfecchia, Claudio Garino, Luca Salassa, Tiziana Ruiu, Diego Gianolio, Xiaoyi Zhang, Klaus Attenkofer, Lin X. Chen, Roberto Gobetto, Peter J. Sadler, Carlo Lamberti, *Dalton Trans.* **42**, 6564-6571 (2013).
130. Controlling Conformations of Conjugated Polymers and Small Molecules: The Role of Nonbonding Interactions, Nicholas E. Jackson, Brett M. Savoie, Kevin L. Kohlstedt, Monica Olvera de la Cruz, George C. Schatz, Lin X. Chen, Mark A. Ratner, *J. Am. Chem.*

Soc. 135, 10475–10483, (2013).

129. Interrogating Photogenerated Higher Valence States of a Water Oxidation Catalyst in an Acceptor-Chromophore-Catalyst Triad, Michael T. Vagnini, Michael W. Mara, Michael R. Harpham, Jier Huang, Megan L. Shelby, Lin X. Chen, Michael R. Wasielewski, *Chem. Sci.*, 4, 3863–3873, Edge Article (2013).
128. Photodissociation Structural Dynamics of Triruthenium Dodecacarbonyl Investigated by X-Ray Transient Absorption Spectroscopy, Michael R. Harpham, Andrew B. Stickrath, Xiaoyi Zhang, Jier Huang, Michael W. Mara, Lin X. Chen, and Di-Jia Liu, *J. Phys. Chem. A* (Takashi Oka Special Issue) *J. Phys. Chem. A*, 117, 9807–9813 (2013).
127. Synthesis and Photovoltaic Effect in Dithieno[2,3-*d*:2',3'-*d'*] Benzo[1,2-*b*:4,5-*b'*] dithiophene-Based Conjugated Polymers, Hae Jung Son, Luyao Lu, Wei Chen, Tao Xu, Tianyue Zheng, Bridget Carsten, Joseph Strzalka, Seth B. Darling, Lin X. Chen, and Luping Yu, *Adv. Mater.* 25, 838–843 (2013).
126. Femtosecond X-ray Absorption Spectroscopy at a Hard X-ray Free Electron Laser: Application to Spin Crossover Dynamics, Henrik T. Lemke, Christian Bressler, Lin X. Chen, David M. Fritz, Kelly J. Gaffney, Andreas Galler, Wojciech Gawelda, Kristoffer Haldrup, Robert W. Hartsock, Hyotcherl Ihee, Jeongho Kim, Jae Hyuk Lee, Martin M. Nielsen, Andrew B. Stickrath, Wenkai Zhang, Diling Zhu, and Marco Cammarata, *J. Phys. Chem. A*, 117, 735–740 (2013).
125. Characterization and modeling of an amorphous iridium oxide water-oxidation catalyst with a carbon admixture, James D. Blakemore, Michael W. Mara, Maxwell N. Kushner-Lenhoff, Nathan D. Schley, Steven J. Konezny, Ivan Rivalta, Christian F. A. Negre, Robert C. Snoeberger, Jier Huang, Andrew Stickrath, Maria L. Parr, Lin X. Chen, David M. Tiede, Victor S. Batista, Gary W. Brudvig, and Robert H. Crabtree, *Inorg. Chem.* 52, 1860–1871 (2013).
124. Ultrafast Structural Dynamics of bis(2,9-di-phenyl-1,10-phenanthroline)copper(I) Using X-ray Transient Absorption Spectroscopy, Michael W. Mara, Jier Huang, Andrew B. Stickrath, Michael R. Harpham, Kristoffer M. Haldrup, Nosheen A. Gothard and Lin X. Chen, *J. Phys. Chem. B* 117, 1921–1931 (2013);
123. Chapter 12. X-ray Transient Absorption Spectroscopy for Solar Energy Research, Lin X. Chen (Invited book chapter) in “Dynamics of interfacial electron and excitation transfer in solar energy conversion: theory and experiment”, in “Solar Energy Conversion: Dynamics of Interfacial Electron and Excitation Transfer” P. Piotrowiak, Ed., Royal Chemical Society, Cambridge, England (2013).
122. Detailed Transient Heme Structures of Mb-CO in Solution after CO Dissociation: An X-ray Transient Absorption Spectroscopic Study, Andrew B. Stickrath, Michael W. Mara, Jenny V. Lockard, Michael R. Harpham, Xiaoyi Zhang, Klaus Attenkofer, Lin X. Chen, *J. Phys. Chem. A* (Paul Barbara Special Issue) 117, 4705 - 4712 (2013).

121. Highly Efficient Ultrafast Electron Injection from the Singlet MLCT Excited State of Cu(I)-Diimine Complexes to TiO₂ Nanoparticles, Jier Huang, Onur Buyukcakir, Michael W. Mara, Ali Coskun, Nada M. Dimitrijevic, Gokhan Barin, Oleksandr Kokhan, Andrew B. Stickrath, Romain Ruppert, David M. Tiede, J. Fraser Stoddart, Jean-Pierre Sauvage, and Lin X. Chen, *Angew. Chem. Intl. Ed.* (2012) *51*, 12711–12715.
120. Photodriven Charge Separation Dynamics in CdSe/ZnS Core/ Shell Quantum Dot/Cobaloxime Hybrid for Efficient Hydrogen Production, Jier Huang, Karen L. Mulfort, Pingwu Du, and Lin X. Chen, *J. Am. Chem. Soc.* *134*, 16472–16475 (2012).
119. Structure and Activity of Photochemically Deposited “CoPi” Oxygen Evolving Catalyst on Titania, Rony S. Khnayzer, Michael W. Mara, Jier Huang, Lin X. Chen, and Felix N. Castellano, *ACS Catalysis*, *2*, 2150–2160 (2012).
118. X-ray Transient Absorption and Picosecond IR Spectroscopy of Fulvalene(tetracarbonyl)diruthenium on Photoexcitation, Michael R. Harpham, Son C. Nguyen, Zongrui Hou, Jeffrey C. Grossman, Charles B. Harris, Michael W. Mara, Andrew B. Stickrath, Yosuke Kanai, Alexie M. Kolpak, Donghwa Lee, Di-Jia Liu, Justin P. Lomont, Kasper Moth-Poulsen, Nikolai Vinokurov, Lin X. Chen, K. Peter C. Vollhardt, *Angew. Chem. Intl. Ed.* *51*, 7692–7696 (2012).
117. Bithiopheneimide-Dithienosilole Copolymers for High-Performance Polymer Solar Cells, Xugang Guo, Nanjia Zhou, Sylvia J. Lou, Jonathan W. Hennek, Shiqiang Li, Shiming Zhang, Lin X. Chen, Robert P. H. Chang, Antonio Facchetti, Tobin J. Marks, *J. Am. Chem. Soc.* *134*, 18427–18439 (2012).
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 5. Picosecond Fluorescence Studies of Polypeptide Dynamics: Fluorescence Anisotropies and Lifetimes, L. X.-Q. Chen, J. W. Petrich, G. R. Fleming, and A. Perico, *Chem. Phys. Lett.* **139**, 55-61 (1987).
 4. Picosecond Time Resolved Fluorescence of RNase T1: A pH and Substrate-analog Binding Study, L. X.-Q. Chen, J. W. Longworth, and G. R. Fleming, *Biophysical J.* **51**, 865-873 (1987).
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 2. Tryptophan Structure And Dynamics Using GROMOS, R. A. Engh, L. X.-Q. Chen, and G. R. Fleming, *Annals New York Academy of Science* **482**, 304-307 (1986).
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Invited Lectures

152. Recent Results on Ultrafast Structural Dynamics of Metalloporphyrins and Metalloproteins Using X-ray Absorption Spectroscopy and X-ray Scattering at the LCLS, Symposium on Pachfichem 2015, Honolulu.

151. Symposium on “Advances and Challenges in Soft Matter Photovoltaic Research” on Nov 13-14, 2015. The symposium will be held at the Institute of Molecular Engineering, University of Chicago.
150. Photophysical Studies of Low Bandgap Polymers for OPV Devices, Department of Materials Science, University of Tennessee, November 3, 2015
149. Structural Control and Dynamics of Excited States in Solar Energy Conversion Processes, Department of Chemistry, University of Illinois at Urbana Champaign, Illinois, October 14, 2015.
148. How Can X-ray Transient Absorption Spectroscopy Aide Solar Energy Research? Department of Chemistry - Ångström Laboratory, Uppsala University, Uppsala, Sweden, September 25, 2015
147. Recent Results on Ultrafast Structural Dynamics of Metalloporphyrins and Metalloproteins Using X-ray Absorption Spectroscopy and X-ray Scattering at the LCLS, Symposium on X-ray for Energy, Lund University, Lund, Sweden, September 24, 2015
146. Photophysical Studies of Low Bandgap Polymers for OPV Devices, 10th Conference on Electronic Processes in Organic Solids, Beijing, China, August 7 – 9, 2015
145. How Can X-ray Transient Spectroscopy Aide Chemical Research? Chemistry and Catalysis: Early experiments and unique opportunities with the APS MBA Upgrade Workshop, May 18-19, 2015
144. Structural Control and Dynamics of Excited States in Solar Energy Conversion Processes, Department of Chemistry, University of Notre Dame, Notre Dame, IN, April 24, 2015.
143. Basic Research from Natural Photosynthesis to Synthetic Solar Fuel and Solar Electricity Conversion Systems, Department of Chemistry, Illinois Institute of Technology, Chicago Illinois, April 1, 2015.
142. How Can Transient X-ray Structural Methods Aide Solar Fuel and Solar Electricity Conversion Research? Photon Science Division Seminar, Stanford Linac Accelerator Center (SLAC), February 11, 2015.
141. How Can Transient X-ray Structural Methods Aide Solar Fuel and Solar Electricity Conversion Research? Okazaki Conference, Okazaki, Japan, February 3-5, 2015.
139. Structural Control and Dynamics of Excited States in Transition Metal Complexes for Solar Energy Conversion, Department of Chemistry, Marquette University, Nov. 21, 2014, Milwaukee, Wisconsin, USA.
138. Controlling Excited State Properties via Intrinsic Structural Factors and External Stimuli,

Workshop on Characterization and Controlling Chemical Dynamics-New Approaches to Resolving Long Standing Questions in Chemical Reactivity October 10, 2014, SSRL/LCLS Users Meeting, Menlo Park, CA, USA.

137. X-ray Transient Absorption Spectroscopy, Workshop on high-pressure time-resolved synchrotron techniques 2014, September 25-27, 2014, Advanced Photon Source, Argonne National Laboratory, Argonne, IL USA.
136. X-ray Transient Absorption Spectroscopy: from Synchrotron to Free Electron Lasers, XFEL symposium at Sørup Herregård, Ringsted, Denmark, August 25-27, 2014.
135. Exciton Dynamics in Charge Transfer Polymers: Effects of Local Structures, Telluride Conference on “Exciton Photovoltaics (XPV)”, August 11 – 15, 2014, Telluride, Colorado.
134. Basic Research from Natural Photosynthesis to Synthetic Solar Fuel and Solar Electricity Conversion Systems, U.S. Department of Energy, Office of Science Graduate Fellowship Research Meeting, July 21, 2014, Argonne National Laboratory
133. Making and Breaking Axial Ligation in Metalloporphyrins with Light: from Small Molecules to Hemeproteins, Telluride Conference “Breaking and Making Bonds with Light”, June 29 – July 3, 2014, Telluride, Colorado.
132. Structural Control and Dynamics of Excited State Cu(I) Diimine Complexes for Interfacial Photoinduced Charge Transfer, Excited State Processes Conference, June 8 – 12, 2014, Santa Fe, New Mexico.
131. Structural Control and Dynamics of Excited State Cu(I) Diimine Complexes for Interfacial Photoinduced Charge Transfer, the 36th DOE Solar Photochemistry Meeting, June 1-4, 2014, Annapolis, Maryland.
130. Interplays of Excited State Structures and Dynamics in Transition Metal Complexes Studied by X-ray Transient Absorption Spectroscopy, International Symposium on “The Forefront of Ultrafast Spectroscopy” Spectroscopical Society of Japan and RIKEN, May 27, 2014, Tokyo, Japan.
129. Structural Dynamics of Photoexcited Transition Metal Complexes Studied by X-ray Transient Absorption Spectroscopy, Department of Chemistry, Toyama University, May 26, 2014, Toyama, Japan.
128. What Is Special About the Low Bandgap Polymers: From Local Molecular Properties to OPV Device Performance? Symposium “Conjugated Polymers for Optoelectronics, Electronics and Biosensors”, ACS Meeting, March 16 – 19, 2014, Dallas, Texas.
127. Structural Dynamics of Excited States Transition Metal Complexes For Solar Energy Conversion, Ultra-Fast Structure Symposium, Institut For Fysik, Danmarks Teknisk Universitat, Nov. 19, 2013, Kobenhavn, Denmark

126. Structural Dynamics of Excited States Transition Metal Complexes For Solar Energy Conversion, Department of Chemistry, Wayne State University, November 7, 2013, Detroit, Michigan, USA.
125. Structural Control and Dynamics of Excited States In Transition Metal Complexes For Solar Energy Conversion, Department of Chemistry, University of Washington, October 30, 2013, Seattle, Washington, USA.
124. What Is Special About the Low Bandgap Polymers: From Local Molecular Properties to OPV Device Performance? Materials Science Division, Argonne National Laboratory, October 24, 2013, Lemont, Illinois, USA
123. Structural Control and Dynamics Of Excited States In Transition Metal Complexes For Solar Energy Conversion, 246th ACS National Meeting, Sept. 8 – 12, 2013, Indianapolis, Indiana, USA.
122. Structural Control And Dynamics Of Excited States In Transition Metal Complexes For Solar Energy Conversion, 20th International Symposium on Photophysics and Photochemistry of Coordination Compounds (invited plenary talk), July 7 – 11, Traverse City, Michigan, USA
121. Correlations of electronic and molecular structures of conducting polymers with device efficiencies in BHJ solar cells, Institute of Chemistry, Chinese Academy of Sciences, Beijing, China, June 29 – July 1, 2013.
120. Structural Dynamics and Photochemistry of Metalloporphyrins: from Small Molecules to Hemeproteins, 1st DySS Workshop, University of Bath, Cosener's House, Abingdon, UK, April 15 – 17, 2013.
119. Tuning Excited State Properties In Transition Metal Complexes For Solar Energy Conversion: Ultrafast Optical And X-ray Transient Spectroscopic Studies, Ultrafast Excited-State Dynamics in Transition Metal-Containing Systems, ACS Meeting, April 8 - 10, 2013, Atlanta, GA, USA
118. Correlations of electronic and molecular structures of conducting polymers with device efficiencies in BHJ solar cells, Energy Frontier Research Center, University of Michigan, Ann Arbor, MI, February 28. 2013.
117. X-ray Transient Absorption Spectroscopy for Solar Energy Conversion and Photochemistry Department of Chemistry, Rutgers University, February 19, 2013.
116. X-ray Transient Absorption Spectroscopy for Solar Energy Conversion and Photochemistry Department of Chemistry, Brookhaven National Laboratory, Upton, New York, December 12, 2012.
115. Correlations of electronic and molecular structures of conducting polymers with device

efficiencies in BHJ solar cells, Workshop on Key Scientific and Technological Issues for Development of Next Generation Organic Solar Cells, September 20 – 21, Arlington, Virginia, USA. (NSF/ONR)

114. Probing Ultrafast Electronic and Nuclear Coherence in Energy and Electron Transfer Processes with X-rays, Next Generation Light Source Workshop, August 23 – 24, 2012, Lawrence Berkeley National Laboratory, Berkeley, California.
113. Excited state coherence and structural control in interfacial electron transfer in DSSC mimics, Gordon Research Conference on Electron Donor-acceptor Interactions, August 5 – 10, 2012, Salve Regina University, Rhode Island, USA.
112. Probing Ultrafast Electronic and Nuclear Coherence with Photons, Gordon Research Conference on Electronic Spectroscopy and Dynamics, July 22 – 27, 2012, Bates College, Maine, USA.
111. X-ray Transient Absorption (XTA) Spectroscopy: Applications in Solar Energy Research - A Decade and Beyond, 15th International Conference on XAFS, July 22 – 28, 2012, Beijing, China
110. Ultrafast exciton splitting in charge transfer conjugated polymers and its implication in OPV materials design, International Conference on Synthetic Metals (ICSM 2012), July 8 – 13, 2012, Atlanta, Georgia, USA.
109. Watching Bond Breaking and Formation with X-ray Snapshots and Movies, Telluride Conference on “Breaking and Making Chemical Bonds with Light”, July 1 – 6, 2012, Telluride, Colorado.
108. Probing Ultrafast Electronic and Nuclear Coherence in Chemical Sciences, LCLS II New Instruments Workshops, March 19 – 22, 2012
107. Probing Ultrafast Electronic and Nuclear Coherence in Chemical Sciences, LCLS-II New Instruments Workshops, Stanford Linear Accelerator Center, Menlos Park, California, March 19 – 22, 2012.
106. X-ray Transient Absorption Spectroscopy: Application in Solar Energy Conversion, IMSS Symposium '11, “Prospects of Quantum Beam Sciences at IMSS: Strongly Correlated Systems and Future ERL Sciences”, Tsukuba International Congress Center, EPOCHAL Tsukuba, Japan, Dec. 6 – 7, 2011.
105. X-ray Transient Absorption Spectroscopy: A Decade and Beyond, "Showcasing WSU's Physics and Astronomy Research to Present and Future Leaders", Washington State University, Nov. 29, 2011.
104. X-ray Transient Absorption Spectroscopy: A Decade and Beyond, High Energy Physics Institute, Chinese Academy of Sciences, Beijing, China, October, 25, 2011.

103. Bridging the Gap between Materials and Devices in Organic Solar Cells, International Functional π -material Conference, Beijing, China, October 14 - 17, 2011.
102. Solar hydrogen generation pathways investigated by static and transient x-ray absorption spectroscopy, SPIE Conferences, San Diego, California, August 21 – 22, 2011.
101. Bridging the Gap between Materials and Devices in Organic Solar Cells, Intel Workshop, Santa Clara, California, July 22, 2011.
100. Bridging the Gap between Materials and Devices in Organic Solar Cells, Department of Chemistry, Cornell University, June 22, 2011.
99. X-ray Transient Absorption Spectroscopy: A Decade and Beyond, Workshop 3-Ultra-fast Science with "Tickle and Probe", Cornell High Energy Synchrotron Source, June 20 -21, 2011.
98. Correlate Excited State Structural Dynamics of Cu(I) complexes with Their Potential in Dye Sensitized Solar Cells, The 33rd DOE Solar Photochemistry Research Conference, Wintergreen, Virginia, June 5-8, 2011.
97. Taking Molecular Snapshots in Disordered Media with X-ray Transient Absorption Spectroscopy: A Decade and Beyond, American Crystallography Association Meeting, New Orleans, Louisiana, May 30, 2011.
96. Ultrafast X-ray Studies in Catalysis: Progress and Challenges, Northwestern-Technical University of Munich Workshop "Energy and Sustainability: Processes and Materials", Garching, Germany, May 13-14, 2011.
95. X-ray Transient Absorption Spectroscopy: from Molecular Dynamics to Solar Energy Research, Users Meeting, Advanced Photon Source, Argonne National Laboratory, May 3, 2011.
94. Ultrafast X-ray Studies in Catalysis: Progress and Challenges, Users Meeting, Advanced Photon Source, Argonne National Laboratory, May 3, 2011.
93. Probing Transient Structures during Interfacial Charge Transfer Using X-ray Transient Absorption Spectroscopy, American Physical Society Meeting, Dallas, Texas, March 21-25, 2011.
92. Bridging the Gap between Materials and Devices in Organic Solar Cells, ANSER Meeting, Northwestern University, March 3, 2011.
91. Molecular Snapshots in Solar Energy Conversion Processes, Symposium Synchrotron Radiation: Emerging Techniques and Applications, Pacifichem 2010, Honolulu, December 15-20, 2010

90. Electronic Coherence in Transition Metal Complexes: Visualization and Control, The Complexity Workshop, October 3-5, 2010, Argonne National Laboratory.
89. Effects of π -conjugation and π - π Stacking in Organic Photovoltaic Materials of Diblock Low Bandgap Co-polymers and Co-oligomers, Symposium "Inorganic and Organic Solar Cells", ACS Annual Meeting, August 22 – 26, 2010, Boston, MA
88. Molecular Snapshots in Solar Energy Conversion Processes, Symposium "Molecular Sciences in Solar Energy Conversion" in ACS Annual Meeting, August 22 – 26, 2010, Boston, MA
87. Fuels from Sunlight: Molecular Snapshots in Solar Energy Conversion Processes, U.S. Department of Energy, Office of Science Graduate Fellowship Research Meeting, August 9, 2010, Argonne National Laboratory.
86. Probing Dynamic Fluctuation of Molecular Orbital Energies and Configurations by Lights, Gordon Research Conference "Vibrational Spectroscopy", August 1-6, 2010, University of New England.
85. Taking Molecular Snapshots using X-rays, 10th International Conference of Dynamics Processes in Condensed Phases (DPC10), Argonne National Laboratory, June 21-25, 2010
84. Time-resolved X-ray Spectroscopy, Neutron X-ray Scattering School Lecture, Argonne National Laboratory, June 16, 2010.
83. Ultrafast Laser Applications in Chemistry, Biology and Materials Sciences, NSF Summer Institute on Nanomechanics, Nanomaterials, and Micro/Nanomanufacturing, June 3, 2010.
82. Effects of π -conjugation and π - π Stacking in Organic Photovoltaic Materials of Diblock Low Bandgap Co-polymers and Co-oligomers, 9th International Conference on π -electron Systems, Georgia Institute of Technology, Atlanta, Georgia, May 23-26, 2010.
81. Molecular Snapshots in Solar Energy Conversion Processes with Excited State Metal Complexes. Ultrafast Dynamics with X-rays and Electrons, Banff, Canada, February 25-28, 2010
80. Femtosecond Photochemistry: Can we capture the transition states? Science and Instrumentation at the European XFEL: Femtosecond X-ray Experiments, Workshop, Budapest, Hungary, December 9-11, 2009.
79. Taking molecular snapshots: Can we capture the transition states? The Future of Ultrafast Soft X-ray Science Workshop, LBNL, Berkeley, California, Dec. 1 - 3, 2009
78. Taking molecular snapshots with pulsed X-rays, Department of Chemistry, Rutgers University, November 20, 2009

77. Unravel the Mystery in Organic Solar Cell Efficiencies through Structural and Dynamics Studies, *Department of Biological, Chemical and Physical Sciences, Illinois Institute of Technology*, Chicago, Illinois, October 2, 2009.
76. Structure/Dynamics Correlations of Excited States Molecules in Solar Energy Conversion Excited State Process (ESP2009) conference, Santa Fe, NM, Aug. 2-6, 2009.
75. Laser-initiated Time-resolved X-ray Absorption Spectroscopy (LITR-XAS): A Decade Studies and Its Applications in Photochemistry and Solar Energy Conversion, *Workshop: Pump Probe Experiments Using a Synchrotron Source, Canadian Light Source*, June 17, 2009.
74. Transient Molecular Structural and Functional Correlations in Solar Energy Generation, *Undergraduate Workshop, American Chemical Society Annual Meeting*, Washington DC, Aug. 16 – 20, 2009
73. Capturing Electrons and Atoms in Action during Solar Fuel Generation Processes, *American Chemical Society Annual Meeting*, Washington DC, Aug. 16 – 20, 2009.
72. Visualizing Excited State Electron and Atomic Movements in Photoactive Transition Metal Complexes during Solar Fuel Generation, *2nd Annual ANSER Solar Energy Symposium*, Northwestern University, Evanston, Illinois, May 5 – 6, 2009.
71. Structural dynamics of transition metal complexes for solar energy conversion, *Photochemistry Gordon Research Conference*, Bryant University, Rhode Island, July 5 – 10, 2009.
70. Tracking Electrons and Atoms in Molecules by X-ray Transient Absorption Spectroscopy, *Department of Chemistry, University of Western Ontario, Canada, October 15, 2008*.
69. OPV Materials from Conjugated Blocks: Oligomers and Polymers, *Gordon Research Conference, Electronic Processes of Organic Materials, July 21-25, 2008, Mount Holyoke College*.
68. Tracking Electrons and Atoms in Photoexcited Molecules with X-ray Transient Absorption Spectroscopy, *Gordon Research Conference, Radiation Chemistry, July 7-11, 2008, Waterville Valley, New Hampshire*.
67. Ultrafast Molecular Structural Dynamics Studied by Laser and X-ray Transient Absorption Spectroscopy, *American Chemical Society Meeting, New Orleans, Louisiana, April 6-10, 2008*.
66. Ultrafast Structural Dynamics in Solar Energy Conversion Processes, *American Chemical Society Meeting, New Orleans, Louisiana, April 6-10, 2008*.
65. Tracking Electrons and Atoms in Molecules by X-ray Transient Absorption Spectroscopy:

from Ultraslow to Ultrafast, *Department of Chemistry, University of Pittsburgh, February 28, 2008.*

64. Ultrafast Structural Dynamics in Solar Energy Conversion Processes, *Short X-ray Pulse Workshop, Advanced Photon Source, Argonne National Laboratory, Argonne, Illinois, February 15, 2008.*
63. Tracking Electrons and Atoms in Molecules by X-ray Transient Absorption Spectroscopy: from Ultraslow to Ultrafast, *Department of Chemistry, University of California Los Angeles, February 13, 2008.*
62. Probing Structural Dynamics in Solar Energy Conversion Processes, *Symposium on "Enabling Grand Challenge of Science: The Light Source of the Future", Jan. 28-30, 2008, Cook Conference Center, Louisiana State University, Baton Rouge, Louisiana*
61. Ultrafast Structural Dynamics in Solar Energy Conversion Processes, *Chemical Sciences and Engineering Division, Argonne National Laboratory, Argonne, Illinois, January 21, 2008.*
60. Femtochemistry and Beyond..., *Symposium: Plans for the Wisconsin Free Electron Laser Facility: Preliminary Design Performance and Scientific Opportunities Engineering Hall, UW-Madison Campus, Thursday Morning, October 11, 2007*
59. Structural Dynamics of Photoactive Metal Complexes Using X-ray Transient Absorption Spectroscopy. *The University of Chicago Review Presentation, Advanced Photon Source, Argonne National Laboratory, September 17-18, 2007.*
58. Ultrafast Structural Dynamics of Photoactive Metal Complexes in Solar Hydrogen Generation. *The Solar Hydrogen and Nanotechnology II SPIE Meeting, San Diego, California, August 27-31, 2007.*
57. Structural Dynamics of Photoactive Metal Complexes Using X-ray Transient Absorption Spectroscopy. *Advanced Photon Source Scientific Advisory Committee Review Presentation, Argonne National Laboratory, May 30, 2007.*
56. Structural Dynamics of Photoactive Metal Complexes Studied by X-ray Transient Absorption Spectroscopy. *Department of Chemistry, Northwestern University, May 9, 2007.*
55. Molecular Structural Dynamics of Photoactive Transition Metal Complexes for Solar Energy Conversion. *Department of Chemistry, Michigan State University, March 15, 2007.*
54. Ultrafast Structural Dynamics of Photoactive Metal Complexes in Solar Energy Conversion *Symposium on "Ultrafast Dynamics Probed by X-rays and Electrons", American Physical Society March Meeting, Denver, Colorado, March 5-9, 2007.*
53. Molecular Structural Dynamics of Photoactive Transition Metal Complexes for Solar

- Energy Conversion. *Department of Chemistry, Purdue University, Jan. 30, 2007.*
52. Novel Nanoscale Organic Materials for Optimal Photovoltaic Functions. *Materials Research Society Fall Meeting, November 27 - December 1, 2006, Boston, Massachusetts.*
 51. Molecular Structural Dynamics of Photoactive Transition Metal Complexes in Solar Energy Conversion Studied by LITR-XAS. *The 13th International Conference of XAFS-13, Stanford, California, July 9-14, 2006.*
 50. Excited State Structural Dynamics of Metalloporphyrins Determined by Laser-initiated Time-resolved XAS (LITR-XAS). *The Forth International Conference of Porphyrins and Phthalocyanines, Rome, Italy, July 2-7, 2006.*
 49. Molecular Structural Dynamics of Photoactive Transition Metal Complexes in Solar Energy Conversion. *28th DOE Solar Photochemistry Research Conference, Airlie, Virginia, June 4-7, 2006.*
 48. Taking Molecular Snapshots in Photochemical Reactions. *BioCARS Workshop on time-resolved and Laue x-ray crystallography, May 6-8, 2006.*
 47. Taking Molecular Snapshots in Photochemical Reactions. *Chemistry Department, Brown University, March 24, 2006.*
 46. Taking Molecular Snapshots in Photochemical Reactions. *Chemistry Department, Bowling Green State University, February 1, 2006.*
 45. Towards Ultrafast Dynamic Structural Studies of Photoinduced Processes in Disordered Media, *Advanced Light Source Users' Meeting, October 20-22, 2005, Berkeley, California.*
 44. Towards Ultrafast Dynamic Structural Studies of Photochemical Reactions. *32nd Annual SSRL Users' Meeting October 15-19, 2005, Stanford, California.*
 43. Toward Ultrafast Excited State Molecular Structure Determination Using Pulsed X-rays *Pacificchem2005, Dec. 14 – 20, 2005, Honolulu, Hawaii.*
 42. Computational Challenges from Experimental Perspective: Structural Uncertainties in Proteins and Molecules. *Symposium on "Theoretical Computation of Biomacromolecular Structures", High Energy Physics Institute, Beijing, Aug. 23-25, 2005.*
 41. Towards Ultrafast Dynamic Structural Studies of Photoinduced Processes in Disordered Media, *Gordon Research Conference "X-ray Physics", Aug. 7 – 12, 2005, Colby-Sawyer College, New Hampshire.*
 40. Towards Ultrafast Excited State Structural Studies in Disordered Media Using Pulsed X-rays, *Workshop on Time Domain Science Using X-ray Techniques, August 29 – September 1, 2004, The Abbey, Fontana, Wisconsin.*

39. Taking Snapshots of Excited State Molecular Structures in Disordered Media. *Workshop on Ultrafast X-ray Science in San Diego, California, April 28 – May 1, 2004.*
38. Towards Ultrafast Excited State Structural Studies in Disordered Media Using Pulsed X-rays, *American Chemical Society Meeting, Anaheim, California, March 27 – April 2, 2004.*
37. Revealing Photoinduced Structural Changes in Time-resolved X-ray Studies: An Innovative Tool for Nanoscience. *1st Workshop for Joint Program Japan-US Research Collaboration for Synchrotron Radiation Nanomaterials Science, “The Role of Synchrotron Radiation for Nanomaterials Science & Technology: Now and the Future.” Tokyo, Japan, March 16-17, 2004.*
36. Taking Snapshots of Photoexcited Molecular Structures in Disordered Media Using Pulsed X-rays. *“Time-resolved Diffraction in Chemistry and Biology” symposium, 2003 American Crystallographic Association Meeting, Cincinnati, Ohio, July 27 – 31, 2003.*
35. Time-domain XAFS using X-ray pulses from Synchrotron. *12th International XAFS Conference, Malmö, Sweden, June 22 – 27, 2003.*
34. Time-domain XAFS using X-ray pulses from Synchrotron. *“XAS at 3rd generation sources: highlights and future perspectives” Workshop, European Synchrotron Radiation Facility, Grenoble, France, June 19 – 20, 2003.*
33. Photoexcited Molecular Structures and dynamics. *26th Department of Energy Solar Photochemistry Research Conference, Lake Tahoe, California, June 7-11, 2003.*
32. Photoexcited Molecular Structures Probed by Pulsed X-rays. *User’s Meeting, National Synchrotron Light Source, Brookhaven National Laboratory, Upton, New York, May 19-21, 2003.*
31. Excited State Molecular Structures in Solution Captured by Pump-probe XAFS. *Indo-US Workshop on Radiation Physics with Synchrotrons and Other New Sources, Argonne National Laboratory, May 13-16, 2003.*
30. Taking Snapshots of Photoexcited Molecular Structures in Disordered Media Using Pulsed X-rays. *“Ultrafast Science with X-rays and Electrons” Workshop, Montreux, Switzerland, April 9-12, 2003.*
29. Finding the Missing Piece of the Puzzle: the Excited State Molecular Structure Captured by Pulsed X-rays. *Materials Science Division, Argonne National Laboratory, April 3, 2003.*
28. Photoexcited Molecular Structures Probed by Pulsed X-rays. *Department of Chemistry, Johns Hopkins University, Baltimore, Maryland, October 1, 2002.*
27. Probing Molecular Structures of Photoexcited States in Solution Using Pulsed X-rays.

Faraday Discussion 122, Royal Society of Chemistry, ATime-Resolved Chemistry: From Structure to Function@, University of Manchester, UK, 24 - 26 June 2002.

26. Probing Transient Molecular Structures with Time-resolved Pump/Probe XAFS Using Synchrotron X-ray Sources. *Department of Chemistry, University of California at Davis, April 18, 2002.*
25. Probing Transient Molecular Structures with Time-resolved Pump/Probe XAFS Using Synchrotron X-ray Sources. *Annual March American Physical Society Meeting, Indianapolis, March 18-22, 2002.*
24. Probing Transient Molecular Structures with Time-resolved Pump/Probe XAFS Using Synchrotron X-ray Sources. *Chemistry Division, Argonne National Laboratory, November 26, 2001.*
23. Probing Transient Molecular Structures with Time-resolved Pump/Probe XAFS Using Synchrotron X-ray Sources. *11th Users Meeting, Advanced Photon Source, Argonne, Illinois, October 9-11, 2001.*
22. Catching molecular devices in action by determination of transient molecular structure using laser pump/x-ray probe XAFS. *222th National American Chemical Society Meeting, Chicago, Illinois, August 26-30, 2001.*
21. Probing Transient Molecular Structures with Time-resolved Pump/Probe XAFS Using Synchrotron X-ray Sources. *User Science Seminar Series, Advanced Photon Source, May 4, 2001.*
20. Probing Transient Molecular Structures with Laser Pump/X-ray Probe Time-domain XAFS. *PacifiChem2000, Honolulu, Hawaii, December 14-19, 2000.*
19. Capturing Molecules in Action with Laser Pump/ X-ray Probe Time-domain XAFS. *Chemistry Department, Brown University, October 20, 2000.*
18. Capturing Molecules in Action with Laser Pump/ X-ray Probe Time-domain XAFS. *User Program Division, Argonne National Laboratory, June 15, 2000.*
17. Introduction of Current Synchrotron Research in Chemistry and Biology. *Institute of High Energy Physics, Beijing, China, May 18, 2000.*
16. Effects of π -conjugation Attenuation and Metal Ion Binding on Exciton Dynamics of Photoconducting Polymers. *College of Chemistry and Molecular Engineering, Peking University, Beijing, May 12, 2000.*
15. Capturing Molecules in Action with Laser Pump/ X-ray Probe Time-domain XAFS. *2nd User=s Meeting of BESSRC-CAT, Advanced Photon Source, Argonne National Laboratory, April 7, 2000.*

14. Effects of π -conjugation Attenuation and Metal Ion Binding on Exciton Dynamics of Photoconducting Polymers. *Department of Biological, Chemical, and Physical Sciences, Illinois Institute of Technology, November 10, 1999.*
13. π -conjugation Attenuated Photoconducting Polymers as An Ensemble of Chromophores. *218th American Chemical Society Meeting, New Orleans, August 22-26, 1999.*
12. Probing Bacterial Photosynthetic Reaction Center Protein Structures Using Non-heme Metal Binding Sites. *23th Department of Energy Solar Photochemistry Research Conference, Lake Tahoe, California, June 7-11, 1999.*
11. Capturing Transient Molecular Structures in Photochemical Reactions Using Time-domain X-ray Absorption. *Department of Chemistry, State University of New York, Buffalo, March 5, 1999.*
10. Effects of π -conjugation Breakers and Metal Ion Binding on Photophysics and Exciton Dynamics of Polyphenylenevinylene (PPV) Derivatives. *Department of Chemistry, Carleton University, Ottawa, Canada, Oct. 5, 1998.*
9. Structure and Dynamics Studies of a Photoinduced Charge Separation Intermediate. *Symposium on Frontiers of Chemistry, Hong Kong University of Science and Technology, Dec. 24, 1997.*
8. Third Order Nonlinear Optical Properties of Stacked Macrocycles: Experiments and Calculations. *Symposium on Nonlinear Optical Properties of Organic Materials, SPIE Conference, July 30-August 3, 1997, San Diego California.*
7. The Third Order Optical Response of Macrocycle Molecular Aggregates in Model Systems and in Photosynthetic Light Harvesting Proteins. *Department of Chemistry, Temple University, September 26, 1996.*
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