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## CURRICULUM VITAE

### MICHAEL P. MINITTI

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#### **PROFESSIONAL PREPARATION**

Brown University	Ph.D.	Physical Chemistry	6/2006
Arizona State University	B.S.	Chemistry	12/2000
Mesa Community College	A.A.	Chemistry	5/1997

#### **PROFESSIONAL APPOINTMENTS**

SLAC National Accelerator Laboratory	LCLS Soft X-ray Department Head	6/2014 – Present
SLAC National Accelerator Laboratory	Lasers in LCLS Science Department Head	5/2012 – 6/2014
SLAC National Accelerator Laboratory	Staff Scientist	3/2011 – Present
Brown University	Faculty Researcher	7/2010 – 2/2011
Ryon Technologies	Research Scientist	8/2009 – 12/2010
Brown University	Postdoctoral Research Associate	9/2007 – 6/2010
Princeton University	Postdoctoral Research Associate	9/2006 – 8/2007

#### **RESEARCH INTERESTS**

- Time-resolved mass and photoelectron spectroscopy via low-lying Rydberg states
- Development and application of time-resolved laser pump/hard X-ray probe scattering techniques at xFEL facilities
- Real-time determination of conformeric molecular structure via x-ray scattering techniques
- Design and commissioning of novel apparatus for molecular structure investigations

## TEACHING EXPERIENCE

SUNY Stony Brook	Physical Chemistry Instrumentation Laboratory	2003
SUNY Stony Brook	General Chemistry Laboratory	2001 – 2002

## PROFESSIONAL AFFILIATIONS

American Chemical Society	2001 - Present
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## PUBLICATIONS

### 2015

J.M. Budarz, **M.P. Minitti**, et al., Ultrafast X-Ray Diffraction Takes Molecular a Movie: Molecular Structure and Dynamics, *J. Am. Chem. Soc.*, *in preparation*

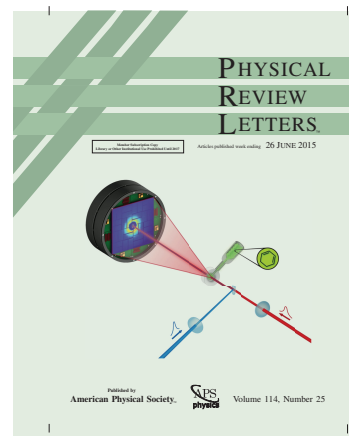
J.M. Budarz, **M.P. Minitti**, et al., Observation of femtosecond gas dynamics via pump-probe x-ray diffraction, *J. Phys. B.*, *in preparation* (2015)

J. A. Johnson, T. Kubacka, et al., Ultrafast laser-induced melting of long-range magnetic order in multiferroic TbMnO<sub>3</sub>, *Phys. Rev. B.*, *in review* (2015)

M. Beye, H. Öberg, et al., Ultrafast observation of activated chemisorbed oxygen, *Phys. Rev. Lett.*, *in review* (2015)

M. Först, A.D. Caviglia, et al., Spatially-resolved ultrafast magnetic dynamics launched at a complex oxide hetero-interface, *Nat. Mater.*, doi:10.1038/nmat4341 (2015)

**M.P. Minitti**, J.M. Budarz, et al., Imaging molecular motion: Femtosecond x-ray scattering of an electrocyclic chemical reaction, *Phys. Rev. Lett.*, 114, 255501 (2015) (COVER ARTICLE)



H. Xin, J. LaRue, et al., Strong influence of coadsorbate interaction on CO desorption dynamics on Ru(0001) probed by ultrafast x-ray spectroscopy and ab initio simulations, *Phys. Rev. Lett.*, 114, 156101 (2015)

J.J. Turner, G.L. Dakovski, et al., Combining THz laser excitation with resonant soft X-ray scattering at the Linac Coherent Light Source, *J. Synchrotron Rad.*, 22, 621 (2015)

**M.P. Minitti**, J.S. Robinson, et al., Optical laser systems at the Linac Coherent Light Source, *J. Synchrotron Rad.*, 22, 526 (2015)

G.L. Dakovski, P. Heimann, et al., The Soft X-Ray instrument at the Linac Coherent Light Source, *J. Synchrotron Rad.*, 22, 498 (2015)

K. R. Ferguson, M. Bucher, et al., The Atomic, Molecular, & Optical Science Instrument at the Linac Coherent Light Source, *J. Synchrotron Rad.* 22, 492 (2015)

S. Eckert, M. Beye, et al., Principles of femtosecond X-ray / optical cross-correlation with X-ray induced transient optical reflectivity in solids, *App. Phys. Lett.*, 106, 061104 (2015)

N. Berggaard, S. Schaffert, et al., Irreversible transformation of ferromagnetic ordered stripe domains in single-shot infrared-pump/resonant-x-ray-scattering-probe experiments, *Phys. Rev. B.*, 91, 054416 (2015)

H. Öström, H. Öberg, et al., Probing the Transition State Region in Catalytic CO Oxidation on Ru, *Science*, 347, 978 (2015)

## **2014**

R. Mankowsky, A. Subedi, et al., Nonlinear lattice dynamics as a basis for enhanced superconductivity in  $\text{YBa}_2\text{Cu}_3\text{O}_{6.5}$ , *Nature*, 516, 71-73 (2014)

M. Först, A. Frano, et al., Femtosecond x-rays link melting of charge-density wave correlations and light-enhanced coherent transport in  $\text{YBa}_2\text{Cu}_3\text{O}_{6.6}$ , *Phys. Rev. B.*, 90, 184514 (2014)

O. Vendrell, J. Küpper, et al., Chemical reaction dynamics I and electron dynamics in molecules: general discussion, *Faraday Disc.*, 171 (1) 145 (2014)

**M.P. Minitti**, J.M. Budarz, et al., Towards structural femtosecond chemical dynamics: Imaging chemistry in space and time, *Faraday Disc.*, 171 (1) 81 (2014)

X. Cheng, Y. Zhang et al., Ultrafast Structural Dynamics in Rydberg Excited N,N,N',N'-Tetramethylethylenediamine: Conformation Dependent Electron Lone Pair Interaction and Charge Delocalization, *Chem. Sci.*, 5 (11), 4394 (2014)

K.R. Siefertmann, C.D. Pemmaraju, et al., Atomic scale perspective of ultrafast charge transfer at a dye-semiconductor interface, *J. Phys. Chem. Lett.*, 5 (15), 2753 (2014)

M. Först , R.I. Tobey, et al., Melting of charge stripes in vibrationally driven  $\text{La}_{1.875}\text{Ba}_{0.125}\text{CuO}_4$ : Assessing the respective roles of electronic and lattice order in frustrated superconductors, *Phys. Rev. Lett.*, 112, 157002 (2014)

T. Kubacka, J.A. Johnson, et al., Direct view of spin dynamics in a large magnitude coherent electromagnon, *Science*, 343, 1333 (2014)

### **2013**

A.D. Caviglia, M. Först, et al., Photo-induced melting of magnetic order in the correlated electron insulator  $\text{NdNiO}_3$ , *Phys. Rev. B.*, 88, 220401 (2013)

R. Mitzner, J. Rehanek, et al., L-Edge X-ray Absorption Spectroscopy of Dilute Systems Relevant to Metalloproteins Using an X-ray Free-Electron Laser, *J. Phys. Chem. Lett.*, 4, 3641 (2013)

A. Shavorskiy, A. Cordones, et al., Time-Resolved X-Ray Photoelectron Spectroscopy Techniques for Real-Time Studies of Interfacial Charge Transfer Dynamics, *Proceedings of the International Conference on the Application of Accelerators in Research and Industry*, Vol: 1525, pp: 475-479 (2013)

### **2012**

**M.P. Minitti**, Y. Zhang, M. Rosenberg, R.Y. Brogaard, S. Deb, T.I. Sølling and P.M. Weber, Far-UV photochemical bond cleavage of Amyl Nitrite: Bypassing a repulsive surface, *J. Phys. Chem. A.*, 116, 810 (2012)

### **2011**

C.C. Bühler, **M.P. Minitti**, S. Deb, J. Bao and P.M. Weber, Ultrafast dynamics of 1,3-Cyclohexadiene in highly excited states, *J. Atom., Molec., Opt. Phys.*, doi: 10.1155/2011/637593 (2011)

S. Deb, **M.P. Minitti** and P.M. Weber, Structural dynamics and energy flow in Rydberg-excited clusters of N,N-Dimethylisopropylamine, *J. Chem. Phys.*, 135, 044319 (2011)

S. Deb, B. Bayes, **M.P. Minitti** and P.M. Weber, Structural dynamics in floppy systems: Ultrafast conformeric motions in Rydberg-excited molecules, *J. Phys. Chem. A.*, 115, 1804 (2011)

J. Bao, **M.P. Minitti** and P.M. Weber, Ring-closing and dehydrogenation reactions of highly excited cis-Stilbene: Ultrafast spectroscopy and structural dynamics, *J. Phys. Chem A.*, 115, 1508 (2011)

## **2010**

J.C. Bush, **M.P. Minitti** and P.M. Weber, Dissociative energy flow, vibrational energy redistribution and conformeric structural dynamics in bifunctional amine model systems, *J. Phys Chem. A.*, 114, 11078 (2010)

M. Rosenberg, **M.P. Minitti**, N. Rusteika, C.Z. Bisgaard, S. Deb, P.M. Weber and T.I. Sølling, Probing the lifetimes of internally excited amyl nitrite cations, *J. Phys. Chem. A.*, 114, 7021 (2010)

J.C. Bush, **M.P. Minitti** and P.M. Weber, Ultrafast formation of an intramolecular cation- $\pi$  bond, *J. Photochem. Photobiol. A: Chem.*, 213, 70 (2010)

## **2007**

**M.P. Minitti** and P.M. Weber, Time-resolved conformational dynamics in hydrocarbon chains, *Phys. Rev. Lett.*, 98, 253004 (2007)

## **2006**

**M.P. Minitti**, J.D. Cardoza and P.M. Weber, Rydberg Fingerprint Spectroscopy of hot molecules: Structural dispersion in flexible hydrocarbons, *J. Phys. Chem. A.*, 110, 10212 (2006)

J.L. Gosselin, **M.P. Minitti**, F. Rudakov, T.I. Sølling and P.M. Weber, Energy flow and fragmentation dynamics of *N,N*-Dimethyl-isopropyl amine, *J. Phys. Chem. A.*, 110, 4251 (2006)

**M.P. Minitti**, J.L. Gosselin, T.I. Sølling and P.M. Weber, The ultrafast photofragmentation pathway of *N,N*-Dimethylisopropylamine, *FemtoChemistry VII*, Eds. A. W. Castleman Jr. & M. L. Kimble, Elsevier (2006) p. 44 - 48.

A.V. Komissarov, **M.P. Minitti**, A.G. Suits and G.E. Hall, Correlated product distributions from ketene dissociation measured by DC slice ion imaging, *J. Chem. Phys.*, 124, 14303 (2006)

## **2003**

D. Townsend, **M.P. Minitti** and A.G. Suits, Direct current slice imaging, *Rev. Sci. Instrum.*, 74, 2530 (2003)

## **RESEARCH TALKS (9 INVITED, 6 CONTRIBUTED)**

Banff Meeting on Structural Dynamics, February 15-18, 2015, Banff, Alberta, Canada, "Imaging Chemistry in Space and Time: Femtosecond X-Ray Scattering of the Ring Opening in 1,3-Cyclohexadiene" (Invited)

Emerging Photon Technologies for Chemical Dynamics, Faraday Discussion 171, July 9-11, 2014, Sheffield, UK, "Femtosecond Chemical Dynamics: Imaging Chemistry in Space and Time" (Contributed)

SLAC Photon Science Seminar, March 19, 2014, Menlo Park CA, "Imaging Molecular Motions in Space and Time: Ultrafast X-Ray Diffraction of Electrocyclic Chemistry at the LCLS" (Invited)

Banff Meeting on Structural Dynamics, February 19-22, 2012, Banff, Alberta, Canada, "Femtosecond Domain Structural Dynamics of Highly Excited 1,3-Cyclohexadiene" (Contributed)

SLAC National Accelerator Laboratory, LCLS Directorate, December 7, 2010, Menlo Park, CA, "Time-resolved Rydberg Fingerprint Spectroscopy: Molecular structure investigations using bound electrons" (Invited)

Sandia National Laboratory, Combustion Research Facility, May 4, 2010, Livermore, CA, "Molecular structure and dynamics in extended molecular systems as seen through Rydberg states" (Invited)

Argonne National Laboratory, X-Ray Sciences Division, March 11, 2010, Lemont, IL, "Molecular structure and dynamics in extended molecular systems as seen through Rydberg states" (Invited)

MIT Lincoln Laboratory, Homeland Protection and Tactical Systems Division, February 3, 2010, Lexington, MA, "Structural dispersion and molecular recognition in extended molecular systems probed with bound electrons" (Invited)

Argonne National Laboratory, X-Ray Sciences Division, January 12, 2010, Lemont, IL, "Structural dynamics in extended molecular systems probed with bound electrons" (Invited)

Lawrence Berkeley National Laboratory, Chemical Sciences Division, October 23, 2009, Berkeley, CA, "Time-resolved measurements of structural dispersion in extended molecular systems" (Invited)

238<sup>th</sup> ACS National Meeting, August 16-20, 2009, Washington, D.C., "Conformer dynamics in vibrationally hot tertiary amines probed with ultrafast Rydberg fingerprint spectroscopy" (Contributed)

University of Copenhagen, DK-2100 Copenhagen, Denmark, June 30, 2009: "Energy Flow and Structural Dynamics of *N,N,N',N'* - Tetramethyl-1,2-ethanediamine at High Temperatures Observed by Ultrafast Rydberg Fingerprint Spectroscopy" (Invited)

63<sup>rd</sup> annual Ohio State University International Symposium on Molecular Spectroscopy, June 17, 2008, Columbus, Ohio, "Rydberg States: Stealthy Spies of Molecular Structure" (Contributed)

Brookhaven National Laboratory, Chemistry Department, July 20, 2007, "Structural Dispersion in Hot Molecules: Applications of Rydberg Fingerprint Spectroscopy" (Contributed)

60<sup>th</sup> annual Ohio State University International Symposium on Molecular Spectroscopy, June 21, 2005, Columbus, Ohio, "Ultrafast Dynamics in Rydberg States of Aliphatic Amines" (Contributed)

### **RESEARCH POSTER PRESENTATIONS**

M.P. Minitti, S. Deb, J. Bao, B. Bayes and P.M. Weber, "Conformer Transformations and Cluster Dynamics in Energized Tertiary Amines", Femtochemistry IX, Peking University, August 8-13, 2009, Beijing, China

M.P. Minitti, J.L. Gosselin and P.M. Weber, "Ultrafast Dynamics in Rydberg States of Tertiary Amines", Femtochemistry VII, Washington D.C., July 17-22, 2005

M.P. Minitti, D. Townsend and A.G. Suits, "Spectroscopy Using Direct Current (DC) Slice Imaging", Symposium on Chemical Physics, Waterloo, ON, Canada, October 31-November 2, 2003

M.P. Minitti, D. Townsend and A.G. Suits, "Ion Pair Imaging Spectroscopy (IPIS) with DC slice imaging", 225<sup>th</sup> ACS National Meeting, New Orleans, LA, March 23-27, 2003

### **REFERENCES**

Prof. Peter M. Weber	Brown University	<a href="mailto:Peter_Weber@brown.edu">Peter_Weber@brown.edu</a>	(401) 863-3767
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