Curriculum Vitae

# Brian J. Moritz

*Staff Scientist*, SLAC National Accelerator Laboratory & Stanford University
Stanford Institute for Materials and Energy Sciences (SIMES) &
Theory Institute for Materials and Energy Spectroscopies (TIMES)
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## Experience

### Staff Appointments

**SLAC National Accelerator Laboratory & Stanford University**
Stanford Institute for Materials and Energy Sciences (SIMES)
*Staff Scientist*, 2014 - Pres.
*Associate Staff Scientist*, 2013 - 2014
*Physical Sciences Research Associate*, 2007 - 2011
Theory Institute for Materials and Energy Spectroscopies (TIMES)
*Staff Scientist*, 2016 - Pres.

### Faculty Appointments

**University of North Dakota**
Department of Physics and Astrophysics
*Adjunct Professor*, 2007 - Pres.
Department of Physics
*Instructor*, Summer 2001

**University of Minnesota–Morris**
Division of Science and Mathematics
*Assistant Professor of Physics and Mathematics*, 2001 - 2003

### Postdoctoral Appointments

**Northern Illinois University**
Department of Physics
*Postdoctoral Research Associate*, 2012 - 2013
Postdoctoral Advisor: Michel van Veenendaal

**University of Waterloo**
Department of Physics and Astronomy
*Postdoctoral Fellow*, 2006 - 2007
Postdoctoral Advisor: Thomas P. Devereaux

**University of Cincinnati**
Department of Physics
*Postdoctoral Fellow O/A*, 2004 - 2005
Postdoctoral Advisor: Mark Jarrell

**University of North Dakota**
Department of Physics
*Postdoctoral Research Associate*, 2004 - 2005
Postdoctoral Advisor: Juana Moreno

**Invited and Visiting Appointments**

**Walther–Meißner–Institute for Low Temperature Research**
Summer 2007, 2010, 2011, 2013, 2014 & 2017
Host: Rudi Hackl

**Stanford University & SLAC National Accelerator Laboratory**
Stanford Institute for Materials and Energy Sciences (SIMES)
*Visiting Scholar* 2011-2012
Host: Thomas P. Devereaux

**Pacific Institute of Theoretical Physics**
Summer 2007
Host: George Sawatzky

**University of British Columbia & Pacific Institute of Theoretical Physics**
Department of Physics and Astronomy
*Visiting Scientist* 2006
Host: George Sawatzky

**Oak Ridge National Laboratory**
Division of Materials Science and Technology
Summer 2005 & 2006
Host: Randy Fishman

**University of Rome "La Sapienza"**
Department of Chemical Engineering &
Interuniversity Center for Disorder and Fractal Systems in Chemical Engineering
Summer 1999
Host: Massimiliano Giona

## Education

**Ph.D., Physics**, May 2000
University of North Dakota, Grand Forks, ND
Dissertation Title: Vector Difference Calculus
Dissertation Advisor: William A. Schwalm

**M.S., Physics**, August 1997
University of North Dakota, Grand Forks, ND
Thesis Title: Green Function Recursions on Hierarchical Lattices and Reduction of Order Using Lie Groups
Thesis Advisor: William A. Schwalm

**B.S. Engineering Physics**, May 1995
University of North Dakota, Grand Forks, ND
Advisor: Ronald Moe

**Graduate Appointments**

**University of North Dakota**
Department of Physics
*Graduate Research Assistant*, 1999 - 2000
*Graduate Teaching Assistant*, 1995 - 1999
Department of Physics, Division of Continuing Education, & the School of Engineering and Mines
*Corporate Engineering Degree Program* (*CEDP*) *Instructor*, Summer 1996, 1997 & 1998

## Awards, Fellowships, Grants, and Allocations

### Grants and Proposals

Scientific Discovery through Advanced Computing (SciDAC) Grant, FY2018 - 2021
U.S. Department of Energy (BES/ASCR)
"Topological and Correlated Matter via Tensor Networks and Quantum Monte Carlo"

Field Work Proposal, FY2017 - 2019
U.S. Department of Energy (BES, MSE), SLAC #100291
"Theory Institute for Materials and Energy Spectroscopies"

Center for Nanophase Materials Sciences (CNMS) Research Proposal, 2016 - 2017 (Lead PI)
Oak Ridge National Laboratory, CNMS2016-209
"Numerical studies of the spin and charge response at low energies in the electron-doped single-band Hubbard model using the dynamical cluster approximation (DCA)"

Field Work Proposal, FY2016 - 2018
U.S. Department of Energy (BES, MSE), SLAC #10027
"Electronic and Magnetic Structure of Quantum Materials"

Computational Materials and Chemical Sciences Network (CMCSN) Grant, FY2012 - 2014
U.S. Department of Energy (BES, MSE/CSGB)
"Computational time-resolved and resonant x-ray scattering of strongly correlated materials"

Single-Investigator and Small-Group Research (SISGR) Grant, FY2009 - 2011
U.S. Department of Energy (BES, MSE)
"Time-resolved soft x-ray materials science at the Linac Coherent Light Source (LCLS) and the Advanced Light Source (ALS)"

Oak Ridge National Laboratory Non-competitive Grant, 2005
Solicitation #6400005249
"Dynamical cluster approximation simulations of dilute magnetic semiconductors"

University of North Dakota Intercollegiate Academics Fund, 1999 (Lead PI)
Award #38
"Vector difference calculus"

### Awards and Fellowships

APS Outstanding Referee, 2017

National Science Foundation North Dakota EPSCoR
Infrastructure Improvement Program Doctoral Dissertation Fellowship, 1999 - 2001

University of North Dakota Summer Doctoral Fellowship, 1999

North Dakota Society of Professional Engineers (Chapter 1)
Outstanding Student Award 1994 & 1995

### High Performance Computing Allocations

Innovative and Novel Computational Impact on Theory and Experiment (INCITE) Award
"Massively parallel simulation of pump-probe time-resolved photoemission"
2009 – 2.3 MCPUhrs

NERSC Initiative for Scientific Exploration (NISE)
"Numerical investigations of symmetry breaking, magnetism and the pseudogap in the three-orbital Hubbard model"
2011 – 1 MCPUhrs

NERSC Initiative for Scientific Exploration (NISE)
"Theory and applications of diamondoid-nanoparticle enhanced organometallic surfaces"
2009 – 275 kCPUhrs

NERSC DOE Production Grant
"Simulation of photon spectroscopies for correlated electron systems"
2017 – 6.5 MCPUhrs, 2016 – 7.5 MCPUhrs, 2015 – 8.084 MCPUhrs, 2014 – 14 MCPUhrs, 2013 – 3.5 MCPUhrs, 2012 – 3.225 MCPUhrs, 2011 – 1.35 MCPUhrs, 2010 – 700 kCPUhrs, 2009 – 500 kCPUhrs, 2008 – 40 kCPUhrs

NERSC DOE Production Grant
"Massively parallel simulation of pump-probe time-resolved photoemission"
2017 – 2.75 MCPUhrs, 2016 – 3.5 MCPUhrs, 2015 – 4 MCPUhrs, 2014 – 5.25 MCPUhrs, 2013 – 3.1 MCPUhrs, 2012 – 3 MCPUhrs, 2011 – 4.175 MCPUhrs, 2010 – 1 MCPUhrs

NERSC DOE Production Grant
"X-ray spectroscopic studies of transition-metal compounds"
2016 – 253 kCPUhrs, 2015 – 3 MCPUhrs, 2014 – 1.35 MCPUhrs, 2013 – 275 kCPUhrs

TeraGrid Development Allocation
"Computational approaches to photon-based spectroscopies for correlated systems"
2008 – 30 kCPUhrs

TeraGrid Resource Allocation
"Simulations employing the dynamical cluster approximation"
2007 – 495 kCPUhrs, 2006 – 418.5 kCPUhrs, 2005 – 50 kCPUhrs

## Teaching Experience

**University of Minnesota–Morris**

Spring 2003
- Quantum Mechanics
- Directed Study: Nuclear and Particle Physics
- Modern Physics + 1 Lab Section

Fall 2002
- Mathematical Methods in Physics
- Classical Mechanics
- Calculus I

Spring 2002
- Quantum Mechanics
- Modern Physics + 1 Lab Section

Fall 2001
- General Physics II + 3 Lab Sections

**University of North Dakota**

Summer 2001
- College Physics I + 1 Lab Section

## Student Research, Advising, and Mentoring

**Undergraduate Senior Theses**

John Buncher, "Neutrino oscillations as a solution to the solar neutrino problem," Physics Discipline, University of Minnesota-Morris, May 2003

Michael Skoby, "Using balance functions to analyze relativistic heavy-ion collision simulations to search for quark-gluon plasma," Physics Discipline, University of Minnesota-Morris, May 2003

Zachary Heinen, "Using Lie groups and Lie algebras to obtain the spherical harmonics," Physics Discipline, University of Minnesota-Morris, May 2002

### Student Advising

Pre-major Advising, Stanford University (Freshmen/Sophomores), 2016 - Pres.

Division of Science and Mathematics, University of Minnesota-Morris, 2001 - 2003

### Graduate Student Mentoring

Stanford University
Cheng-Chien Chen, Elizabeth Nowadnick, Chunjing Jia, Katherine Luna, Yvonne Kung, Nachum Plonka, Saahil Shenoy, Yao Wang, Martin Claassen, Thomas Böhm (Visiting, WMI/TUM), Edwin Huang, Benjamin Nosarzewski, Harrison Ruiz, Clement Bazin (Visiting, EPFL), Ilkyu Lee, Yuan Chen, Xuxin Huang

University of Waterloo
Steven Johnston

University of Cincinnati
Karlis Mikelsons, Muhammad Aziz Majidi

## Professional Activities

### Committee Service

National Energy Research Scientific Computing Center (NERSC)
Users' Group Executive Committee (NUGEX: BES Representative), 2010 - 2012

SLAC National Accelerator Laboratory Scientific Computing Steering Committee
(SCSC: Photon Science Representative), 2010 - 2011

Kaufman and McCree Awards Committee, University of Minnesota-Morris, 2002 & 2003

### Conference, Workshop, and Meeting Organization

SIMES Resonant Inelastic X-ray Scattering (RIXS) Workshop, SLAC National Accelerator Laboratory, Menlo Park, CA (September 24 - 26, 2014)

8$^{\text{th}}$ International Conference on Inelastic X-ray Scattering (IXS 2013), SLAC National Accelerator Laboratory, Menlo Park, CA (August 11 - 16, 2013)

Spectroscopy on Novel Superconductors 2013 (SNS 2013), Lawrence Berkeley National Laboratory, Berkeley, CA (June 24 - 28, 2013)

SLAC National Accelerator Laboratory Scientific Computing Workshop 2011, SLAC National Accelerator Laboratory, Menlo Park, CA (June 20 - 21, 2011)

Computational Materials Science Network (CMSN) RIXS Computational Research Team (CRT) Meeting, SLAC National Accelerator Laboratory, Menlo Park, CA (November 13, 2009)

SIMES Inelastic X-ray Scattering (IXS) Workshop, SLAC National Accelerator Laboratory, Menlo Park, CA (August 3 - 5, 2009)

3$^{\text{rd}}$ Stanford-Yonsei Joint Workshop on Condensed Matter Physics, SLAC National Accelerator Laboratory, Menlo Park, CA (February 25 - 26, 2009)

### Collaboration, Workshop, and Meeting Participation

Workshop Panelist
Integration of Theory Codes & Theory Codes for Spectroscopy, National Science Foundation (NSF) Scientific Software Innovation Institute for Advanced Analysis of X-ray and Neutron Scattering Data (SIXNS): Theoretical software and analysis tools and software integration for scattering science (University of Washington, Seattle, WA, Jan. 17-18, 2014)

Computational Materials and Chemical Sciences Network (CMCSN) Research Teams, 2012 - 2014
Small Cluster/Exact Diagonalization & Dynamical Mean-Field Theory (DMFT)

APS March Meeting Session Chair
2017 (New Orleans) - Session B41: Theory of Superconducting Cuprates
2016 (Baltimore) - Session S20: Quantum Many-Body Systems and Methods I
2014 (Denver) - Session Y47: Theory of Strongly Correlated Superconductivity

## Editing, Refereeing, and Reviewing

Editorial Board Member
*Journal of Spectroscopy and Dynamics*, Cognizure Publishing (2011-2013)

Proposal Reviewer
U.S. Department of Energy (BES, MSE: X-ray Scattering, Theoretical Condensed Matter Physics, Experimental Condensed Matter Physics)
National Science Foundation (CAREER)
DFG, German Research Foundation (Emmy Noether)
GAČR, Czech Science Foundation

Journal Referee
*Nature Materials*, *Nature Physics*, *Nature Communications*, *Scientific Reports*, *Proceedings of the National Academy of Sciences*, *Physical Review X*, *Physical Review Letters*, *Physical Review B*, *Angewandte Chemie*, *New Journal of Physics*, *Physica Status Solidi B*, *Journal of Electron Spectroscopy and Related Phenomena*, *Journal of Physics and Chemistry of Solids*

## Society Memberships and Executive Offices

American Physical Society

Tau Beta Pi, North Dakota Beta Chapter
*Secretary*, 1994

Eta Kappa Nu, Delta Rho Chapter
*Secretary*, 1994 - 1995

Order of the Engineer, University of North Dakota

Society of Physics Students, University of North Dakota
*Vice-President*, 1997 - 1999
*Treasurer*, 1994 - 1995

Alpha Lambda Delta, University of North Dakota Chapter

## Publications and Presentations

### Journal Articles and Conference Proceedings

J-88 arXiv:1707.03974 [cond-mat.str-el] (Accepted in *Computer Physics Communications*)
"Paradeisos: a perfect hashing algorithm for many-body eigenvalue problems," C.J. Jia, Y. Wang, C. B. Mendl, B. Moritz, and T. P. Devereaux

J-87 *Physical Review B* **96**, 235142 (2017)
"Producing coherent excitations in pumped Mott antiferromagnetic insulators," Y. Wang, M. Claassen, B. Moritz, and T. P. Devereaux

J-86 *Physical Review B* **96**, 245112 (2017)
"Revealing the Coulomb interaction strength in a cuprate superconductor," S.-L. Yang, J. A. Sobota, Y. He, Y. Wang, D. Leuenberger, H. Soifer, M. Hashimoto, D. H. Lu, H. Eisaki, B. Moritz, T. P. Devereaux, P. S. Kirchmann, and Z.-X. Shen

J-85 *Science* **358**, 1161-1164 (2017)
"Numerical evidence of fluctuating stripes in the normal state of high-$T_c$ cuprate superconductors," E. W. Huang, C. B. Mendl, S.X. Liu, S. Johnston, H.-C. Jiang, B. Moritz, and T. P. Devereaux

J-84 *Physical Review B* **96**, 205141 (2017)
"Doping dependence of ordered phases and emergent quasiparticles in the doped Hubbard-Holstein model," C. B. Mendl, E. A. Nowadnick, E. W. Huang, S. Johnston, B. Moritz, and T. P. Devereaux

J-83 *Physical Review B* **96**, 184518 (2017)
"Amplitude mode oscillations in pump-probe photoemission spectra from a $d$-wave superconductor," B. Nosarzewski, B. Moritz, J. K. Freericks, A. F. Kemper, and T. P. Devereaux

J-82 *Physical Review B* **96**, 195106 (2017)
"Numerically exploring the 1D-2D dimensional crossover on spin dynamics in the doped Hubbard model," Y. F. Kung, C. Bazin, K. Wohlfeld, Yao Wang, C.-C. Chen, C.J. Jia, S. Johnston, B. Moritz, F. Mila, and T. P. Devereaux

J-81 *Nature Communications* **8**, 1192 (2017)
"Dynamical time-reversal symmetry breaking and photo-induced chiral spin liquids in frustrated Mott insulators," M. Claassen, H.-C. Jiang, B. Moritz, and T. P. Devereaux

J-80 *Nature Physics* **13**, 952-956 (2017)
"Dispersive charge density wave excitations in $Bi_2Sr_2CaCu_2O_{8+\delta}$," L. Chaix, G. Ghiringhelli, Y.Y. Peng, M. Hashimoto, B. Moritz, K. Kummer, N. B. Brookes, Y. He, S. Chen, S. Ishida, Y. Yoshida, H. Eisaki, M. Salluzzo, L. Braicovich, Z.-X. Shen, T. P. Devereaux, and W.-S. Lee

J-79 *Physical Review B* **96**, 115117 (2017)
"Spin and charge excitations in artificial hole- and electron-doped infinite layer cuprate superconductors," G. Dellea, M. Minola, A. Galdi, D. Di Castro, C. Aruta, N. B. Brookes, C.J. Jia, C. Mazzoli, M. Moretti Sala, B. Moritz, P. Orgiani, D. G. Schlom, A. Tebano, G. Balestrino, L. Braicovich, T. P. Devereaux, L. Maritato, and G. Ghiringhelli

J-78 *Annalen der Physik* **529**, 1600235 (2017) (Review Article)
"Review of the theoretical description of time-resolved angle-resolved photoemission spectroscopy in electron-phonon mediated superconductors," A. F. Kemper, M. A. Sentef, B. Moritz, T. P. Devereaux, and J. K. Freericks

J-77 *Physical Review B* **96**, 020503(R) (2017)
"Decrease of $d$-wave pairing strength in spite of the persistence of magnetic excitations in the overdoped Hubbard model," E. W. Huang, D. J. Scalapino, T. A. Maier, B. Moritz, and T. P. Devereaux

J-76 *Science* **357**, 71-75 (2017)
"Femtosecond electron-phonon lock-in by photoemission and x-ray free-electron laser," S. Gerber, S.-L. Yang, D. Zhu, H. Soifer, J. A. Sobota, S. Rebec, J. J. Lee, T. Jia, B. Moritz, C.J. Jia, A. Gauthier, Y. Li, D. Leuenberger, Y. Zhang, L. Chaix, W. Li, H. Jang, J.-S. Lee, M. Yi, G. L. Dakovski, S. Song, J. M. Glownia, S. Nelson, K. W. Kim, Y.-D. Chuang, Z. Hussain, R. G. Moore, T. P. Devereaux, W.-S. Lee, P. S. Kirchmann, and Z.-X. Shen

J-75 *Nature Physics* **13**, 683-687 (2017)
"Quantum spin Hall state in monolayer 1T′-$WTe_2$," S.J. Tang, C.F. Zhang, D. Wong, Z. Pedramrazi, H.-Z. Tsai, C.J. Jia, B. Moritz, M. Claassen, H.J. Ryu, S. Kahn, J. Jiang, H. Yan, M. Hashimoto, D.H. Lu, R. G. Moore, C.C. Hwang, C.Y. Hwang, Z. Hussain, Y.L. Chen, M. M. Ugeda, Z. Liu, X.M. Xie, T. P. Devereaux, M. F. Crommie, S.-K. Mo, and Z.-X. Shen

J-74 *Physical Review B* **95**, 235122 (2017)
"Effects of an additional conduction band on singlet-antiferromagnet competition in the periodic Anderson model," W.J. Hu, R. T. Scalettar, E. W. Huang, and B. Moritz

J-73 *Physical Review B* **95**, 121105(R) (2017)
"Nonequilibrium lattice-driven dynamics of stripes in nickelates using time-resolved x-ray scattering," W.-S. Lee, Y. F. Kung, B. Moritz, G. Coslovich, R. A. Kaindl, Y.-D. Chuang, R. G. Moore, D.H. Lu, P. S. Kirchmann, J. S. Robinson, M. P. Minitti, G. Dakovski, W. F. Schlotter, J. J. Turner, S. Gerber, T. Sasagawa, Z. Hussain, Z.-X. Shen, and T. P. Devereaux

J-72 *Physical Review Letters* **117**, 267201 (2016)
"Distinct electronic structure for the extreme magnetoresistance in YSb," J.F. He, C.F. Zhang, N. J. Ghimire, T. Liang, C.J. Jia, J. Jiang, S.J. Tang, S. Chen, Y. He, S.-K. Mo, C. C. Hwang, M. Hashimoto, D.-H. Lu, B. Moritz, T. P. Devereaux, Y.L. Chen, J. F. Mitchell, and Z.-X. Shen

J-71 *Physical Review X* **6**, 041019 (2016)
"Directly characterizing the relative strength and momentum dependence of electron-phonon coupling using resonant inelastic x-ray scattering," T. P. Devereaux, A. M. Shvaika, K. Wu, K. Wohlfeld, C. J. Jia, Y. Wang, B. Moritz, L. Chaix, W.-S. Lee, Z.-X. Shen, G. Ghiringhelli, and L. Braicovich

J-70 *Nature Communications* **7**, 13074 (2016)
"All-optical materials design of chiral edge modes in transition-metal dichalcogenides," M. Claassen, C.J. Jia, B. Moritz, and T. P. Devereaux

J-69 *Scientific Reports* **6**, 32732 (2016)
"Origin of the low critical observing temperature of the quantum anomalous Hall effect in V-doped $(Bi,Sb)_2Te_3$ film," W. Li, M. Claassen, C.-Z. Chang, B. Moritz, T. Jia, C. Zhang, S. Rebec, J. J. Lee, M. Hashimoto, D.-H. Lu, R. G. Moore, J. S. Moodera, T. P. Devereaux and Z.-X. Shen

J-68 *Nature Materials* **15**, 835-839 (2016)
"Tailoring the nature and strength of electron-phonon interactions in the $SrTiO_3$(001) 2D electron liquid," Z. Wang, S. McKeown Walker, A. Tamai, Y. Wang, Z. Ristic, F.Y. Bruno, A. de la Torre, S. Riccò, N.C. Plumb, M. Shi, P. Hlawenka, J. Sánchez-Barriga, A. Varykhalov, T.K. Kim, M. Hoesch, P.D.C. King, W. Meevasana, U. Diebold, J. Mesot, B. Moritz, T.P. Devereaux, M. Radovic, and F. Baumberger

J-67 *Physical Review X* **6**, 021020 (2016)
"Using RIXS to uncover elementary charge and spin excitations," C.J. Jia, K. Wohlfeld, Y. Wang, B. Moritz, and T. P. Devereaux

J-66 *Physical Review B* **93**, 155166 (2016) (Editors' Suggestion)
"Characterizing the three-orbital Hubbard model with determinant quantum Monte Carlo," Y. F. Kung, C.-C. Chen, Yao Wang, E. W. Huang, E. A. Nowadnick, B. Moritz, R. T. Scalettar, S. Johnston, and T. P. Devereaux

J-65 *Physical Review Letters* **116**, 086401 (2016)
"Using non-equilibrium dynamics to probe competing orders in a Mott-Peierls system," Y. Wang, B. Moritz, C.-C. Chen, C.J. Jia, M. van Veenendaal, and T. P. Devereaux

J-64 *Scientific Reports* **6**, 19657 (2016)
"Raman and fluorescence characteristics of resonant inelastic X-ray scattering from doped superconducting cuprates," H. Y. Huang, C.J. Jia, Z. Y. Chen, K. Wohlfeld, B. Moritz, T. P. Devereaux, W. B. Wu, J. Okamoto, W.-S. Lee, M. Hashimoto, Y. He, Z.-X. Shen, Y. Yoshida, H. Eisaki, C. Y. Mou, C. T. Chen, and D. J. Huang

J-63 *Physical Review B* **92**, 224517 (2015)
"Direct observation of Higgs mode oscillations in the pump-probe photoemission spectra of

electron-phonon mediated superconductors," A. F. Kemper, M. A. Sentef, B. Moritz, J. K. Freericks, and T. P. Devereaux

J-62 *Physical Review B* **92**, 195108 (2015)
"Doping evolution of spin and charge excitations in the Hubbard model," Y. F. Kung, E. A. Nowadnick, C.J. Jia, S. Johnston, B. Moritz, R. T. Scalettar, and T. P. Devereaux

J-61 *Physical Chemistry Chemical Physics* **17**, 26369-26377 (2015)
"Why $LiFePO_4$ is a safe battery electrode: Coulomb repulsion induced electron-state reshuffling upon lithiation," X.S. Liu, Y. J. Wang, B. Barbiellini, H. Hafiz, S. Basak, J. Liu, T. Richardson, G.J. Shu, F.C. Chou, T.-C. Weng, D. Nordlund, D. Sokaras, B. Moritz, T. P. Devereaux, R. Qiao, Y.-D. Chuang, A. Bansil, Z. Hussain, and W.L. Yang

J-60 *Physical Review B* **92**, 075119 (2015)
"Origin of strong dispersion in Hubbard insulators," Y. Wang, K. Wohlfeld, B. Moritz, C.J. Jia, M. van Veenendaal, K. Wu, C.-C. Chen, and T. P. Devereaux

J-59 *Physical Review B* **92**, 024503 (2015)
"Fidelity study of superconductivity in extended Hubbard models," N. Plonka, C.J. Jia, Y. Wang, B. Moritz, and T. P. Devereaux

J-58 *Nature Communications* **6**, 7377 (2015)
"Direct characterization of photoinduced lattice dynamics in $BaFe_2As_2$," S. Gerber, K. W. Kim, Y. Zhang, D. Zhu, N. Plonka, M. Yi, G. L. Dakovski, D. Leuenberger, P. S. Kirchmann, R. G. Moore, M. Chollet, J. M. Glownia, Y. Feng, J.-S. Lee, A. Mehta, A. F. Kemper, T. Wolf, Y.-D. Chuang, Z. Hussain, C.-C. Kao, B. Moritz, Z.-X. Shen, T. P. Devereaux, and W.-S. Lee

J-57 *Nature Communications* **6**, 7047 (2015)
"Theory of Floquet band formation and local pseudospin textures in pump-probe photoemission of graphene," M. A. Sentef, M. Claassen, A. F. Kemper, B. Moritz, T. Oka, J. K. Freericks, and T. P. Devereaux

J-56 *Physical Review B* **91**, 165127 (2015)
"Renormalization of spectra by phase competition in the half-filled Hubbard-Holstein model," E. A. Nowadnick, S. Johnston, B. Moritz, and T. P. Devereaux

J-55 *Journal of Physical Chemistry C* **119**, 2063-2072 (2015)
"Probing $LaMO_3$ metal and oxygen partial density of states using x-ray emission, absorption, and photoelectron spectroscopy," W. T. Hong, K. A. Stoerzinger, B. Moritz, T. P. Devereaux, W. Yang, and Y. Shao-Horn

J-54 *Nature Materials* **14**, 37-42 (2015)
"Direct spectroscopic evidence for phase competition between the pseudogap and superconductivity in $Bi_2Sr_2CaCu_2O_{8+\delta}$," M. Hashimoto, E. A. Nowadnick, R.-H. He, I. M. Vishik, B. Moritz, Y. He, K. Tanaka, R. G. Moore, D.H. Lu, Y. Yoshida, M. Ishikado, T. Sasagawa, K. Fujita, S. Ishida, S. Uchida, H. Eisaki, Z. Hussain, T. P. Devereaux, and Z.-X. Shen

J-53 *Physical Review X* **4**, 041046 (2014)
"Balancing act: evidence for a strong subdominant $d$-wave pairing channel in $Ba_{0.6}K_{0.4}Fe_2As_2$," T. Böhm, A. F. Kemper, B. Moritz, F. Kretzschmar, B. Muschler, H.-M. Eiter, R. Hackl, T. P. Devereaux, D. J. Scalapino, and H.-H. Wen

J-52 *Physical Review B* **90**, 224507 (2014)
"Numerical exploration of spontaneous broken symmetries in multi-orbital Hubbard models," Y. F. Kung, C.-C. Chen, B. Moritz, S. Johnston, R. Thomale, and T. P. Devereaux

J-51 *Nature Physics* **10**, 883-889 (2014)
"Asymmetry of collective excitations in electron- and hole-doped cuprate superconductors," W.-S. Lee, J. J. Lee, E. A. Nowadnick, S. Gerber, W. Tabis, S. W. Huang, V. N. Strocov, E. M. Motoyama, G. Yu, B. Moritz, H. Y Huang, R. P. Wang, Y. B. Huang, W. B. Wu, C. T. Chen, D. J. Huang, M. Greven, T. Schmitt, Z.-X. Shen, and T. P. Devereaux

J-50 *Physical Review B* **90**, 075126 (2014)
"Effect of dynamical spectral weight redistribution on effective interactions in time-resolved spectroscopy," A. F. Kemper, M. A. Sentef, B. Moritz, J. K. Freericks, and T. P. Devereaux

J-49 *Physical Review B* **89**, 220511(R) (2014) (Editors' Suggestion)
"Direct observation of bulk charge modulations in optimally-doped $Bi_{1.5}Pb_{0.6}Sr_{1.54}CaCu_2O_{8+\delta}$," M. Hashimoto, G. Ghiringhelli, W.-S. Lee, G. Dellea, A. Amorese, C. Mazzoli, K. Kummer, N. B. Brookes, B. Moritz, Y. Yoshida, H. Eisaki, Z. Hussain, T. P. Devereaux, Z.-X. Shen, and L. Braicovich

J-48 *Nature Communications* **5**, 3711 (2014)
"Dynamic competition between spin density wave order and superconductivity in underdoped $Ba_{1-x}K_xFe_2As_2$," M. Yi, Y. Zhang, Z. Liu, X. Ding, J.-H. Chu, A. F. Kemper, N. Plonka, B. Moritz, M. Hashimoto, S.-K. Mo, Z. Hussain, T. P. Devereaux, I. R. Fisher, H.-H. Wen, Z.-X. Shen, and D.H. Lu

J-47 *Physical Review Letters* **112**, 156402 (2014)
"Real-space visualization of remnant Mott gap and magnon excitations," Y. Wang, C.J. Jia, B. Moritz, and T. P. Devereaux

J-46 *Nature Communications* **5**, 3314 (2014)
"Persistent spin excitations in doped antiferromagnets revealed by resonant inelastic light scattering," C.J. Jia, E. A. Nowadnick, K. Wohlfeld, Y. F. Kung, C.-C. Chen, S. Johnston, T. Tohyama, B. Moritz, and T. P. Devereaux

J-45 *Physical Review B* **89**, 041104(R) (2014) (Editors' Suggestion)
"Charge-orbital-lattice coupling effects in the $dd$-excitation profile of one dimensional cuprates," J. J. Lee, B. Moritz, W.-S. Lee, M. Yi, C.J. Jia, A. P. Sorini, K. Kudo, Y. Koike, K.J. Zhou, C. Monney, V. Strocov, L. Patthey, T. Schmitt, T. P. Devereaux, and Z.X. Shen

J-44 *Physical Review X* **3**, 041033 (2013)
"Examining electron-boson coupling using time-resolved spectroscopy," M. Sentef, A. F. Kemper, B. Moritz, J. K. Freericks, Z.-X. Shen, and T. P. Devereaux

J-43 *Physical Review B* **88**, 125114 (2013)
"Time-dependent charge-order and spin-order recovery in striped systems," Y. F. Kung, W.-S. Lee, C.-C. Chen, A. F. Kemper, A. P. Sorini, B. Moritz, and T. P. Devereaux

J-42 *Physical Review Letters* **111**, 077401 (2013)
"Electron-mediated relaxation following ultrafast pumping of strongly correlated materials: model evidence of a correlation-tuned crossover between thermal and nonthermal states," B. Moritz, A. F. Kemper, M. Sentef, T. P. Devereaux, and J. K. Freericks

J-41 *Physical Review B* **87**, 235139 (2013)
"Mapping of unoccupied states and relevant bosonic modes via the time-dependent momentum distribution," A. F. Kemper, M. Sentef, B. Moritz, C.-C. Kao, Z.-X. Shen, J. K. Freericks, and T. P. Devereaux (Figure 4 appears in *Physical Review B: Kaleidoscope*, June 2013)

J-40 *Physical Review Letters* **110**, 265502 (2013)
"Role of lattice coupling in establishing electronic and magnetic properties in quasi-one-dimensional cuprates," W.-S. Lee, S. Johnston, B. Moritz, J. Lee, M. Yi, K. J. Zhou, T. Schmitt, L. Patthey, V. Strocov, K. Kudo, Y. Koike, J. van den Brink, T. P. Devereaux, and Z.-X. Shen

J-39 *Physical Review B* **87**, 235133 (2013) (Editors' Suggestion)
"Determinant quantum Monte Carlo study of the two-dimensional single-band Hubbard-Holstein model," S. Johnston, E. A. Nowadnick, Y. F. Kung, B. Moritz, R. T. Scalettar, and T. P. Devereaux

J-38 *Physical Review B* **87**, 165144 (2013)
"Doping evolution of the oxygen $K$-edge x-ray absorption spectra of cuprate superconductors using a three-orbital Hubbard model," C.-C. Chen, M. Sentef, Y. F. Kung, C. J. Jia, R. Thomale, B. Moritz, A. P. Kampf, and T. P. Devereaux

J-37 *Physical Review Letters* **110**, 127404 (2013)
"Real-time manifestation of strongly coupled spin and charge order parameters in stripe-ordered $La_{1.75}Sr_{0.25}NiO_4$ nickelate crystals using time-resolved resonant x-ray diffraction," Y.-D. Chuang, W. S. Lee, Y. F. Kung, A. P. Sorini, B. Moritz, R. G. Moore, L. Patthey, M. Trigo, D.H. Lu, P. S. Kirchmann, M. Yi, O. Krupin, M. Langner, Y. Zhu, S. Y. Zhou, D. A. Reis, N. Huse, J. S. Robinson, R. A. Kaindl, R. W. Schoenlein, S. L. Johnson, M. Först, D. Doering, P. Denes, W. F. Schlotter, J. J. Turner, T. Sasagawa, Z. Hussain, Z. X. Shen, and T. P. Devereaux

J-36 *New Journal of Physics* **15**, 023003 (2013)
"Theoretical description of high-order harmonic generation in solids," A. F. Kemper, B. Moritz, J. K. Freericks, and T. P. Devereaux

J-35 *Physical Review Letters* **109**, 246404 (2012)
"Competition between antiferromagnetic and charge density-wave-order in the half-filled Hubbard-Holstein model," E. A. Nowadnick, S. Johnston, B. Moritz, R. T. Scalettar, and T. P. Devereaux

J-34 *New Journal of Physics* **14**, 113038 (2012)
"Uncovering selective excitations using the resonant profile of indirect inelastic x-ray scattering in correlated materials: observing two-magnon scattering and relation to the dynamical structure factor," C.J. Jia, C.-C. Chen, A. P. Sorini, B. Moritz, and T. P. Devereaux

J-33 *Journal of Physics: Condensed Matter* **24**, 475603 (2012) (IOP Select)
"Suppression of superconductivity in the Hubbard model by buckling and breathing phonons," A. Macridin, B. Moritz, M. Jarrell, and T. Maier

J-32 *Physical Review B* **86**, 134509 (2012)
"Quasiparticle interference and the interplay between superconductivity and density wave order in the cuprates," E. A. Nowadnick, B. Moritz, and T. P. Devereaux

J-31 *Nature Communications* **3**, 838 (2012)
"Phase fluctuations and the absence of topological defects in a photo-excited charge-ordered nickelate," W.-S. Lee, Y.-D. Chuang, R. G. Moore, Y. Zhu, L. Patthey, M. Trigo, D.H. Lu, P. S. Kirchmann, O. Krupin, M. Yi, M. Langner, N. Huse, J. S. Robinson, Y. Chen, S. Y. Zhou, G. Coslovich, B. Huber, D. A. Reis, R. A. Kaindl, R. W. Schoenlein, D. Doering, P. Denes, W. F. Schlotter, J. J. Turner, S. L. Johnson, M. Först, T. Sasagawa, Y. F. Kung, A. P. Sorini, A. F. Kemper, B. Moritz, T. P. Devereaux, D.-H. Lee, Z.-X. Shen, and Z. Hussain

J-30 *Physical Review B* **85**, 155142 (2012)
"Resonant enhancement of charge density wave diffraction in the rare-earth tritellurides," W.-S. Lee, A. P. Sorini, M. Yi, Y.-D. Chuang, B. Moritz, W.L. Yang, J.-H. Chu, H.H. Kuo, A. G. Cruz Gonzalez, I. R. Fisher, Z. Hussain, T. P. Devereaux, and Z.-X. Shen

J-29 *Physical Review B* **84**, 235114 (2011)
"Investigation of particle-hole asymmetry in the cuprates via electronic Raman scattering," B. Moritz, S. Johnston, T. P. Devereaux, B. Muschler, W. Prestel, R. Hackl, M. Lambacher, A. Erb, S. Komiya, and Y. Ando

J-28 *Physical Review B* **84**, 174523 (2011)
"Coincidence between energy gaps and Kohn anomalies in conventional superconductors," S. Johnston, A. P. Sorini, B. Moritz, T. P. Devereaux, and D. J. Scalapino

J-27 *Physical Review B* **84**, 125113 (2011)
"Fidelity study of the superconducting phase diagram in the two-dimensional single-band Hubbard model," C. J. Jia, B. Moritz, C.-C. Chen, B. Sriram Shastry, and T. P. Devereaux

J-26 *Proceedings of the National Academy of Sciences* **108**, 6878-6883 (2011)
"Symmetry-breaking orbital anisotropy observed for detwinned $Ba(Fe_{1-x}Co_x)_2As_2$ above the spin density wave transition," M. Yi, D.H. Lu, J.-H. Chu, J. G. Analytis, A. P. Sorini, A. F. Kemper, B. Moritz, S.-K. Mo, R. G. Moore, M. Hashimoto, W.-S. Lee, Z. Hussain, T. P. Devereaux, I. R. Fisher, and Z.-X. Shen

J-25 *Physical Review B* **83**, 195123 (2011)
"High-energy anomaly in $Nd_{2-x}Ce_xCuO_4$ investigated by angle-resolved photoemission spectroscopy and quantum Monte Carlo simulations," F. Schmitt, B. Moritz, S. Johnston, S.-K. Mo, M. Hashimoto, R. G. Moore, D.-H. Lu, E. Motoyama, M. Greven, T. P. Devereaux, and Z.-X. Shen

J-24 *New Journal of Physics* **13**, 043025 (2011) (IOP Select)
"Revealing the degree of magnetic frustration by non-magnetic impurities," C.-C. Chen, R. Applegate, B. Moritz, T. P. Devereaux, and R. R. P. Singh

J-23 *Computer Physics Communications* **182**, 109-111 (2011)
"Temporal response of nonequilibrium correlated electrons," B. Moritz, T. P. Devereaux, and J. K. Freericks

J-22 *Computer Physics Communications* **182**, 106-108 (2011)
"Numerical studies of photon-based spectroscopies on high-$T_c$ superconductors," C.-C. Chen, B. Moritz, C. J. Jia, S. Johnston, A. P. Sorini, L.-Q. Lee, K. Ko, and T. P. Devereaux

J-21 *Physical Review Letters* **105**, 177401 (2010)
"Unraveling the nature of charge excitations in $La_2CuO_4$ with momentum-resolved Cu $K$-edge resonant inelastic X-ray scattering," C.-C. Chen, B. Moritz, F. Vernay, J. N. Hancock, S. Johnston, C. J. Jia, G. Chabot-Couture, M. Greven, I. Elfimov, G. A. Sawatzky, and T. P. Devereaux

J-20 *Physical Review B* **82**, 100504(R) (2010) (Editors' Suggestion)
"Orbital order and spontaneous orthorhombicity in iron pnictides," C.-C. Chen, J. Maciejko, A. P. Sorini, B. Moritz, R. R. P. Singh, and T. P. Devereaux

J-19 *Physical Review B* **82**, 064513 (2010)
"Systematic study of electron-phonon coupling to oxygen modes across the cuprates," S. Johnston, F. Vernay, B. Moritz, Z.-X. Shen, N. Nagaosa, J. Zaanen, and T. P. Devereaux (Figure 7(b) appears in *Physical Review B: Kaleidoscope*, August 2010)

J-18 *Journal of Electron Spectroscopy and Related Phenomena* **181**, 31-34 (2010)
"Insights on the cuprate high energy anomaly observed in ARPES," B. Moritz, S. Johnston, and T. P. Devereaux

J-17 *Physical Review Letters* **104**, 207002 (2010)
"Doping-dependent nodal Fermi velocity of the high-temperature superconductor $Bi_2Sr_2CaCu_2O_{8+\delta}$ revealed using high-resolution angle-resolved photoemission spectroscopy," I. M. Vishik, W.-S. Lee, F. Schmitt, B. Moritz, T. Sasagawa, S. Uchida, K. Fujita, S. Ishida, C. Zhang, T. P. Devereaux, and Z.-X. Shen

J-16 *Physical Review B* **81**, 165112 (2010)
"Time-resolved photoemission of correlated electrons driven out of equilibrium," B. Moritz, T. P. Devereaux, and J. K. Freericks [Archived in *Virtual Journal of Ultrafast Science* **9** (5) (May 2010)]

J-15 *Advances in Condensed Matter Physics* **2010**, 968304 (2010) (Review Article)
"Material and doping dependence of the nodal and anti-nodal dispersion renormalizations in single- and multi-layer cuprates," S. Johnston, W.-S. Lee, Y. Chen, E. A. Nowadnick, B. Moritz, Z.-X. Shen, and T. P. Devereaux

J-14 *New Journal of Physics* **12**, 023004 (2010)
"Strong energy-momentum dispersion of phonon-dressed carriers in the lightly doped band insulator $SrTiO_3$," W. Meevasana, X. J. Zhou, B. Moritz, C.-C. Chen, R. H. He, S.-I. Fujimori, D. H. Lu, S.-K. Mo, R. G. Moore, F. Baumberger, T. P. Devereaux, D. van der Marel, N. Nagaosa, J. Zaanen, and Z.-X. Shen

J-13 *Physical Review Letters* **104**, 037201 (2010)
"Nonlocal effects on magnetism in the diluted magnetic semiconductor $Ga_{1-x}Mn_xAs$," U. Yu, A. Nili, K. Mikelsons, B. Moritz, J. Moreno, and M. Jarrell

J-12 *Physical Review B* **80**, 180418(R) (2009)
"Finite-temperature spin dynamics and phase transitions in spin-orbital models," C.-C. Chen, B. Moritz, J. van den Brink, T. P. Devereaux, and R. R. P. Singh

J-11 *Nature Physics* **5**, 718-721 (2009)
"A momentum-dependent perspective on quasiparticle interference in $Bi_2Sr_2CaCu_2O_{8+\delta}$," I. M. Vishik, E. A. Nowadnick, W.-S. Lee, Z.-X. Shen, B. Moritz, T. P. Devereaux, K. Tanaka, T. Sasagawa, and T. Fujii

J-10 *New Journal of Physics* **11**, 093020 (2009)
"Effect of strong correlations on the high energy anomaly in hole- and electron-doped high-$T_c$ superconductors," B. Moritz, F. Schmitt, W. Meevasana, S. Johnston, E. M. Motoyama, M. Greven, D. H. Lu, C. Kim, R. T. Scalettar, Z.-X. Shen, and T. P. Devereaux

J-9 *Physical Review B* **80**, 014508 (2009) (Editors' Suggestion)
"Evidence for weak electronic correlations in iron pnictides," W.L. Yang, A. P. Sorini, C.-C. Chen, B. Moritz, W.-S. Lee, F. Vernay, P. Olalde-Velasco, J. D. Denlinger, B. Delley, J.-H. Chu, J. G. Analytis, I. R. Fisher, Z. A. Ren, J. Yang, W. Lu, Z. X. Zhao, J. van den Brink, Z. Hussain, Z.-X. Shen, and T. P. Devereaux (See also the "Viewpoint" by Zlatko Tesanovic in *Physics* **2**, 60 (2009))

J-8 *Physical Review B* **77**, 104519 (2008)
"Cu $K$-edge resonant inelastic X-ray scattering in edge-sharing cuprates," F. Vernay, B. Moritz, I. S. Elfimov, J. Geck, D. Hawthorn, T. P. Devereaux, and G. A. Sawatzky

J-7 *Physical Review Letters* **97**, 056402 (2006)
"Synergistic polaron formation in the Hubbard-Holstein model at small doping," A. Macridin, B. Moritz, M. Jarrell, and T. Maier

J-6 *Physical Review B* **71**, 134207 (2005)
"Continuous spectra of a family of lattices containing the modified rectangle lattice of Dhar," W. Schwalm and B. Moritz

J-5 *International Journal of Modern Physics B* **15**, 3336-3343 (2001)
"Topological lattice model of electrons coupled to a classical polarization field," W. Schwalm, S. Crockett, and B. Moritz

J-4 *International Journal of Modern Physics B* **15**, 3279-3286 (2001)
"Dynamics of Cremona maps from physical models," W. Schwalm, B. Moritz, and M. Schwalm

J-3 *Journal of Physics A: Mathematical and General* **34**, 589-602 (2001)
"Triangle lattice Green functions for vector fields," B. Moritz and W. Schwalm

J-2 *Physical Review E* **59**, 1217-1233 (1999)
"Vector difference calculus for physical lattice models," W. Schwalm, B. Moritz, M. Giona, and M. Schwalm

J-1 *Journal of Physics A: Mathematical and General* **31**, 7379-7402 (1998)
"Finding Lie groups that reduce the order of discrete dynamical systems," B. Moritz, W. Schwalm, and D. Uherka

**Archive Preprints**

A-9 arXiv:1801.03709 [cond-mat.str-el]
"Influence of magnetism and correlation on the spectral properties of doped Mott insulators," Y. Wang, B. Moritz, C.-C. Chen, T. P. Devereaux, and K. Wohlfeld (Submitted to *Physical Review X*)

A-8 arXiv:1711.04931 [cond-mat.str-el]
"Magnon splitting induced by charge transfer in the three-orbital Hubbard model," Y. Wang, E. W. Huang, B. Moritz, and T. P. Devereaux (Submitted to *Physical Review Letters*)

A-7 arXiv:1711.01493 [cond-mat.str-el]
"Breakdown of Migdal-Eliashberg theory: a determinant quantum Monte Carlo study," I. Esterlis, B. Nosarzewski, E. W. Huang, B. Moritz, T. P. Devereaux, D. J. Scalapino, and S. A. Kivelson (Submitted to *Physical Review Letters*)

A-6 arXiv:1709.08998 [cond-mat.str-el]
"Frustrated spin order and stripe fluctuations in FeSe," A. Baum, H. N. Ruiz, N. Lazarević, Y. Wang, T. Böhm, R. H. Ahangharnejhad, P. Adelmann, T. Wolf, Z. V. Popović, B. Moritz, T. P. Devereaux, and R. Hackl (Submitted to *Nature Communications*)

A-5 arXiv:1709.08790 [cond-mat.str-el]
"Light-enhanced spin fluctuations and $d$-wave superconductivity at a phase boundary," Y. Wang, C.-C. Chen, B. Moritz, and T. P. Devereaux (Submitted to *Physical Review Letters*)

A-4 arXiv:1709.02398 [cond-mat.str-el]
"Stripe order from the perspective of the Hubbard model," E. W. Huang, C. B. Mendl, H.-C. Jiang, B. Moritz, and T. P. Devereaux (Submitted to *Proceedings of the National Academy of Sciences*)

A-3 arXiv:1708.05460 [cond-mat.str-el]
"Pressure effects on the $4f$ electronic structure of light lanthanides," W.-T. Chiu, D. R. Mortensen, M. J. Lipp, C.J. Jia, B. Moritz, T. P. Devereaux, G. T. Seidler, and R. T. Scalettar (Submitted to *Physical Review Letters*)

A-2 arXiv:1703.07749 [cond-mat.supr-con]
"The case for spin-fluctuation induced superconductivity in $Ba_{1-x}K_xFe_2As_2$," T. Böhm, F. Kretzschmar, A. Baum, M. Rehm, D. Jost, R. Hosseinian Ahangharnejhad, R. Thomale, C. Platt, T. A.

Maier, W. Hanke, B. Moritz, T. P. Devereaux, D. J. Scalapino, S. Maiti, P. J. Hirschfeld, P. Adelmann, T. Wolf, H.-H. Wen, and R. Hackl (Submitted to *Science*)

A-1 arXiv:0710.5937 [cond-mat.str-el]
"Charge density wave driven ferromagnetism in the Periodic Anderson model," M. A. Majidi, D. G. S. P. Doluweera, B. Moritz, P. R. C. Kent, J. Moreno, and M. Jarrell

**Invited Colloquia, Seminars, and Presentations**

I-39 "Collective excitations in RIXS from charge, spin, lattice, and orbital degrees of freedom," $23^{\mathrm{rd}}$ Users' Meeting and Workshops, National Synchrotron Radiation Research Center (NSRRC), Hsinchu, Taiwan (September 7, 2017)

I-38 "Optical materials design of transition metal dichalcogenides and frustrated Mott insulators," $10^{\mathrm{th}}$ International Symposium on Ultrafast Surface Dynamics (USD10), Inzell, Germany (June 13, 2017)

I-37 "Fluctuating stripes in numerical models of doped cuprates," Excitations in Correlated Systems and Energy Materials 2017 (ECSEM17), Walther-Meißner-Institute for Low Temperature Research, Garching b. München, Germany (June 7, 2017)

I-36 "Electronic and magnetic structure of quantum materials: theory, modeling, and simulation," 2016 BES X-ray Scattering Principal Investigators' Meeting, Gaithersburg, MD (November 9, 2016)

I-35 "All-Optical materials design of chiral edge modes in transition-metal dichalcogenides," New Quantum Phases with Frustration and Entanglement, Jagiellonian University, Krakow, Poland (June 21, 2016)

I-34 "RIXS as a probe of elementary excitations in energy, momentum, and time," Probing Structure and Dynamics of Quantum Materials via X-ray Scattering at LCLS, LCLS/SSRL Users' Meeting & Workshops 2015, SLAC National Accelerator Laboratory, Menlo Park, CA (October 9, 2015)

I-33 "Evolution of spin, charge, orbital, and lattice excitations in cuprates from RIXS at the Cu $L$-edge," Unraveling Emergent Phenomena in Quantum Systems with Experimental and Theoretical Advances in RIXS – Joint ALS/SIMES Workshop, ALS Users' Meeting 2015, Lawrence Berkeley National Laboratory, Berkeley, CA (October 7, 2015)

I-32 "Synergetic activities: theory and simulation," 2014 BES X-ray Scattering Principal Investigators' Meeting, Gaithersburg, MD (November 7, 2014)

I-31 "Completing the puzzle of spin excitations in cuprate superconductors," Walther-Meißner-Institute for Low Temperature Research, Garching b. München, Germany (June 24, 2014)

I-30 "Doping evolution of low energy magnetic excitations in cuprates revealed by resonant inelastic x-ray scattering," Quantum Phenomena in Strongly Correlated Electrons, Jagiellonian University, Krakow, Poland (June 17, 2014)

I-29 "Low energy excitations revealed by resonant inelastic x-ray scattering," SIMES Seminar Series, SLAC National Accelerator Laboratory, Menlo Park, CA (October 18, 2013)

I-28 "Resonant inelastic x-ray scattering as a probe for more than just charge excitations," Gordon Research Conference: X-Ray Science, Stonehill College, Easton, MA (August 7, 2013)

I-27 "Resonant inelastic x-ray scattering as a probe for more than charge excitations," Excitations in Correlated Systems and Energy Materials (ECSEM), Walther-Meißner-Institute for Low Temperature Research, Garching b. München, Germany (July 25, 2013)

I-26 "Correlation controlled quasi-thermalization following ultrafast transient pumping," Physics at the Falls: Recent Progress in Nonequilibrium Quantum Many-Body Theory, SUNY Buffalo, Amherst, NY (May 16, 2013)

I-25 "Time-resolved spectroscopy in correlated electron materials," Fall Seminar Series, Louisiana Alliance for Simulation-Guided Materials Applications (LA-SiGMA), Louisiana State University, Baton Rouge, LA (October 31, 2012)

I-24 "Time-resolved resonant x-ray scattering in striped nickelates," Theory and Software Group, X-ray Science Division, Advanced Photon Source, Argonne National Laboratory, Lemont, IL (September 10, 2012)

I-23 "Pump-probe photoemission and nonequilibrium electronic response," Novel Trends in Photoemission Workshop, Advanced Light Source Users' Meeting 2011, Lawrence Berkeley National Laboratory, Berkeley, CA (October 4, 2011)

I-22 "Pulsed-field pump-probe response for correlated electron systems," Complex Order and Fluctuations Workshop, Walther-Meißner-Institute for Low Temperature Research, Garching b. München, Germany (July 25, 2011)

I-21 "Equilibrium and nonequilibrium spectroscopy for correlated systems," TIPS: Theory Institute for Photon Science Workshop, Advanced Light Source Users' Meeting 2010, Lawrence Berkeley National Laboratory, Berkeley, CA (October 14, 2010)

I-20 "Electron-hole asymmetry in the cuprates," Walther-Meißner-Institute for Low Temperature Research, Garching b. München, Germany (July 21, 2010)

I-19 "Simulating time-resolved photoemission and resonant X-ray scattering," Stanford High Performance Computing Conference V, Stanford University, Stanford, CA (September 11, 2009)

I-18 "Time-resolved spectroscopy: tr-PES and tr-IXS," SIMES IXS Workshop, SLAC National Accelerator Laboratory, Menlo Park, CA (August 4, 2009)

I-17 "High energy anomaly dichotomy in electron- and hole-doped high-temperature superconductors," 3$^{\mathrm{rd}}$ Stanford-Yonsei Joint Workshop on Condensed Matter Physics, SLAC National Accelerator Laboratory, Menlo Park, CA (February 25, 2009)

I-16 "Universal high energy anomaly revealed by Hubbard model calculations," GCOE Workshop 2009, University of Tokyo, Hongo-Bunkyo, Japan (January 10, 2009)

I-15 "Quantum Monte Carlo, Bayesian inference, and the spectral function in strongly correlated systems," Stanford University Physics Journal Club, Department of Applied Physics, Stanford University, Stanford, CA (November 18, 2008)

I-14 "Current highlights and future directions for computational studies of resonant inelastic X-ray scattering (RIXS) as part of the Computational Materials Science Network (CMSN)," CMSN RIXS CRT Meeting, Argonne National Laboratory, Argonne, IL (October 27, 2008)

I-13 "Shining a light on photon spectroscopy with computer simulations," Stanford High Performance Computing Conference IV, Stanford University, Stanford, CA (August 28, 2008)

I-12 "An investigation of the high energy anomaly seen in ARPES using QMC simulations of the 2D Hubbard model," Walther-Meißner-Institute for Low Temperature Research, Garching b. München, Germany (August 10, 2007)

I-11 "The effect of electron-phonon interaction on antiferromagnetism and pairing in the 2D Hubbard-Holstein model," Department of Physics, University of California-Davis, Davis, CA (April 27, 2006)

I-10 "The Dynamical Cluster Approximation: introduction and application," Center for Condensed Matter Sciences and National Center for Theoretical Sciences (North), National Taiwan University, Taipei, Taiwan (January 18, 2006)

I-9 "The Dynamical Cluster Approximation: a cluster extension of DMFT," Center for Condensed Matter Sciences and National Center for Theoretical Sciences (North), National Taiwan University, Taipei, Taiwan (January 16, 2006)

I-8 "Magnetic properties of ferromagnetic semiconductors: finding the optimal material parameters for spintronic device applications," Department of Physics, University of Waterloo, Waterloo, ON, Canada (May 5, 2005)

I-7 "Hierarchical lattice models with evidence of metallic conductance," High Flux Isotope Reactor (HFIR) and Condensed Matter Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN (April 27, 2005)

I-6 "Magnetic semiconductors: growth, materials, devices, and characterization," Department of Physics, University of North Dakota, Grand Forks, ND (April 8, 2005)

I-5 "Novel properties of the modified rectangle lattice," Theoretical Division, Group T-1, Los Alamos National Laboratory, Los Alamos, NM (July 13, 2004)

I-4 "Discrete vector calculus with an application to polaron dynamics," Division of Science, Physics Discipline, Truman State University, Kirksville, MO (March 3, 2004)

I-3 "Discrete calculus for vector fields," Department of Physics, DePauw University, Greencastle, IN (March 14, 2003)

I-2 "Discrete vector calculus: introduction and applications," Division of Science and Mathematics, Physics Discipline, University of Minnesota-Morris, Morris, MN (April 20, 2001)

I-1 "Vector difference calculus," Department of Physics, University of North Dakota, Grand Forks, ND (October 22, 1999)

**News and Other Articles about My Research**

N-30 "Study confirms that cuprate materials have fluctuating stripes that may be linked to high-temperature superconductivity," *SLAC News Feature*, November 30, 2017

N-29 "Research experience from California benefits Swiss X-ray free-electron laser SwissFEL," *PSI Media Release*, July 7, 2017

N-28 "Hunting down unconventional superconductors," *Science* **357**, 32-33 (2017) ("Perspectives" by D.-H. Lee)

N-27 "Tool reveals mechanism behind high-temperature superconductivity," *IEEE Spectrum: Nanoclast*, July 6, 2017

N-26 "Scientists get first direct look at how electrons 'dance' with vibrating atoms," *SLAC Press Release*, July 6, 2017

N-25 "Topological materials: monolayers have the edge," *Nature Physics* **13**, 630-631 (2017) ("News and Views" by A. Devarakonda and J. G. Checkelsky)

N-24 "2-D material's traits could send electronic R&D spinning in new directions," *LBNL News Release*, June 26, 2017

N-23 "New research finds a missing piece to high-temperature superconductor mystery," *SLAC News Feature*, June 14, 2017

N-22 "RIXS reveals signatures of propagating charge density wave excitations in cuprates," *ESRF Spotlight on Science*, June 12, 2017

N-21 "New SLAC theory institute aims to speed research on exotic materials at light sources," *SLAC News Feature*, April 11, 2017

N-20 "SLAC study: light can switch on topological materials," *SLAC News Feature*, January 4, 2017

N-19 "Tailoring novel superconductivity," *PSI Science Highlights*, April 11, 2016

N-18 "Spiraling laser pulses could change the nature of graphene," *SLAC News Feature*, May 27, 2015

N-17 "Spectroscopic evidence for the phase competition between the pseudogap and high-$T_c$ superconductivity," *SSRL Science Highlights*, January 30, 2015

N-16 "First direct evidence that a mysterious phase of matter competes with high-temperature superconductivity," *SLAC News Feature*, December 19, 2014

N-15 "Puzzling new behavior found in high-temperature superconductors," *SLAC News Feature*, October 20, 2014

N-14 "Magnetism and superconductivity compete in iron-based superconductors," *SSRL Science Highlights*, April 30, 2014

N-13 "Scientists watch high-temperature superconductivity emerge out of magnetism," *SLAC News Feature*, April 24, 2014

N-12 "Study shows high-energy magnetic interactions alone don't cause high-temperature superconductivity," *SLAC News Feature*, April 15, 2014

N-11 "Scientists explore why some materials are superconductive at high temperatures," *iSGTW: International Science Grid of the Week Feature*, March 19, 2014

N-10 "SIMES simulations track energized electrons to understand complex materials," *SLAC News Feature*, January 31, 2014

N-9 "X-ray laser uncovers secrets of complex oxide material," *SLAC Today*, May 16, 2012

N-8 "Symmetry breaking orbital anisotropy in iron-based superconductors," *SSRL Science Highlights*, July 25, 2011

N-7 "Workshop highlights SLAC and Stanford Photon Science," *SLAC Today*, March 16, 2010

N-6 "Electron correlation in iron-based superconductors," *ALS Science Highlights*, February 24, 2010

N-5 "Evidence for weak electronic correlations in the iron pnictides," *CMSN Newsletter* **5**, Number 4 (Summer 2009)

N-4 "Are iron pnictides new cuprates?" *Physics* **2**, 60 (2009) ("Viewpoint" by Zlatko Tesanovic)

N-3 "Three research grants and a new branchline for SIMES and SSRL," *SLAC Today*, July 27, 2009

N-2 "SLAC scientists awarded supercomputing time," *SLAC Today*, December 19, 2008

N-1 "High-performance computing is the key to UND scientists' explorations in nanoscience," *UND Discovery*, Autumn 2005 (Office of the Vice President for Research, University of North Dakota)

**Conference Presentations**

C-101 "Comparing the spin structure factor between parent compounds in different cuprate families," B. Moritz, Y. Wang, E. W. Huang, C.J. Jia, and T. P. Devereaux, APS March Meeting, New Orleans, LA (March 2017)

C-100 "Fluctuating spin stripes in the normal state of high-$T_c$ cuprate superconductors," E. W. Huang, C. B. Mendl, S.X. Liu, S. Johnston, H.-C. Jiang, B. Moritz, and T. P. Devereaux, APS March Meeting, New Orleans, LA (March 2017)

C-99 "Signature of charge density wave excitations in Bi2212 via ultrahigh resolution RIXS," W.-S. Lee, L. Chaix, G. Ghiringhelli, Y.Y. Peng, M. Hashimoto, B. Moritz, K. Kummer, N. B. Brookes, Y. He, S. Chen, S. Ishida, H. Eisaki, L. Braicovich, Z.-X. Shen, and T. P. Devereaux, APS March Meeting, New Orleans, LA (March 2017)

C-98 "Coherent excitations induced by pumping a Mott system," Y. Wang, M. Claassen, B. Moritz, and T. P. Devereaux, APS March Meeting, New Orleans, LA (March 2017)

C-97 "Numerical study of resonant inelastic x-ray scattering for transition-metal complexes and oxides," C.J. Jia, B. Moritz, Y. Wang, and T. P. Devereaux, APS March Meeting, New Orleans, LA (March 2017)

C-96 "Dynamical time-reversal symmetry breaking and photo-induced chiral spin liquid in frustrated Mott insulators," M. Claassen, H.-C. Jiang, B. Moritz, and T. P. Devereaux, APS March Meeting, New Orleans, LA (March 2017)

C-95 "Exploring the local electronic structure of monolayer 1T′-$WTe_2$ via scanning tunneling spectroscopy," Z. Pedramrazi, S.J. Tang, C.F. Zhang, D. Wong, H.-Z. Tsai, S. Kahn, C.J. Jia, B. Moritz, H. Yan, R. G. Moore, H.J. Ryu, J. Jiang, M. Hashimoto, D.H. Lu, C.C. Hwang, C.Y Hwang, Z. Hussain, Y.L. Chen, M. M. Ugeda, Z. Liu, X.M. Xie, T. P. Devereaux, S.-K. Mo, Z.-X. Shen, and M. F. Crommie, APS March Meeting, New Orleans, LA (March 2017)

C-94 "Distinct electronic structure for the extreme magnetoresistance in YSb," J.F. He, C.F. Zhang, N. J. Ghimire, T. Liang, C.J. Jia, J. Jiang, S.J. Tang, S. Chen, Y. He, S.-K. Mo, C. C. Hwang, M. Hashimoto, D.-H. Lu, B. Moritz, T. P. Devereaux, Y.L. Chen, J. F. Mitchell, and Z.-X. Shen, APS March Meeting, New Orleans, LA (March 2017)

C-93 "Doping dependence of competing pairing channels in $Ba_{1x}K_xFe_2As_2$," T. Böhm, F. Kretzschmar, A. Baum, M. Rehm, D. Jost, R. H. Ahangharnejhad, R. Thomale, C. Platt, T. Maier, W. Hanke, B. Moritz, T. P. Devereaux, D. J. Scalapino, S. Maiti, P. Hirschfeld, P. Adelmann, T. Wolf, H.-H. Wen, and R. Hackl, APS March Meeting, New Orleans, LA (March 2017)

C-92 "Raman scattering and the role of magnetic frustration in competing iron chalcogenide spin orders," H. Ruiz, Y. Wang, B. Moritz, and T. P. Devereaux, APS March Meeting, New Orleans, LA (March 2017)

C-91 "Quantifying electron-phonon coupling in FeSe by tracking coherent phonons," P. S. Kirchmann, S. Gerber, S.-L. Yang, H. Soifer, D. Zhu, J. A. Sobota, S. Rebec, J. J. Lee, T. Jia, B. Moritz, C.J. Jia, Y. Li, D. Leuenberger, Y. Zhang, H. Jang, J.-S. Lee, S. Song, J. M. Glownia, S. Nelson, K.W. Kim, Y.-D. Chuang, R. G. Moore, T. P. Devereaux, W.-S. Lee, and Z.-X. Shen, APS March Meeting, New Orleans, LA (March 2017)

C-90 "Impact of strong forward scattering electron-phonon coupling at the $SrTiO_3$ interface," B. L. Nosarzewski, E. W. Huang, B. Moritz, Y. Wang, and T. P. Devereaux, APS March Meeting, New Orleans, LA (March 2017)

C-89 "Numerical study of x-ray spectroscopies for understanding anionic redox in Li-ion battery compounds through charge transfer hybridization full atomic multiplet theory," I.K. Lee, C.J. Jia, Y. F. Kung, B. Moritz, and T. P. Devereaux, APS March Meeting, New Orleans, LA (March 2017)

C-88 "Car-Parrinello molecular dynamics study of the charge-discharge cycle in lithium-ion battery materials," Y. F. Kung, C.J. Jia, W. E. Gent, I.K. Lee, B. Moritz, and T. P. Devereaux, APS March Meeting, New Orleans, LA (March 2017)

C-87 "Doping evolution of low-energy quasiparticles in the Hubbard model," B. Moritz, Y. Wang, C.J. Jia, Y. He, K. Wohlfeld, C.-C. Chen, and T. P. Devereaux, APS March Meeting, Baltimore, MD (March 2016)

C-86 "All-optical materials design of dissipationless chiral edge modes in transition-metal dichalcogenides," M. Claassen, C.J. Jia, B. Moritz, and T. P. Devereaux, APS March Meeting, Baltimore, MD (March 2016)

C-85 "Why $LiFePO_4$ is a safe battery electrode: Coulomb repulsion induced electron-state reshuffling upon lithiation," Y. J. Wang, X.S. Liu, B. Barbiellini, H. Hafiz, S. Basak, J. Liu, T. Richardson, G.J. Shu, F.C. Chou, T.-C. Weng, D. Nordlund, D. Sokaras, B. Moritz, T. P. Devereaux, R.M. Qiao, Y.-D. Chuang, A. Bansil, Z. Hussain, and W.L. Yang, APS March Meeting, Baltimore, MD (March 2016)

C-84 "Using non-equilibrium dynamics to probe competing orders in a Mott-Peierls system," Y. Wang, B. Moritz, C.-C. Chen, C.J. Jia, M. van Veenendaal, and T. P. Devereaux, APS March Meeting, Baltimore, MD (March 2016)

C-83 "Searching for stripe order in the Hubbard model," E. Huang, C. Mendl, H.-C. Jiang, S.X. Liu, Y. F. Kung, B. Moritz, S. Johnston, and T. P. Devereaux, APS March Meeting, Baltimore, MD (March 2016)

C-82 "Simulation of the x-ray emission spectrum from early lanthanides," W.-T. Chiu, C.J. Jia, B. Moritz, T. P. Devereaux, M. Lipp, D. Mortensen, G. Seidler, and R. T. Scalettar, APS March Meeting, Baltimore, MD (March 2016)

C-81 "Theory of pump-probe photoemission from a $d$-wave superconductor," B. Nosarzewski, B. Moritz, A. F. Kemper, J. K. Freericks, and T. P. Devereaux, APS March Meeting, Baltimore, MD (March 2016)

C-80 "Numerical study of iron-based superconductors and nematic order," H. Ruiz, M. Claassen, Y. Wang, C.J. Jia, B. Moritz, and T. P. Devereaux, APS March Meeting, Baltimore, MD (March 2016)

C-79 "Doping dependence of ordered phases in the Hubbard-Holstein model," C. Mendl, E. A. Nowadnick, Y. F. Kung, B. Moritz, S. Johnston, and T. P. Devereaux, APS March Meeting, Baltimore, MD (March 2016)

C-78 "Hole motion in the Hubbard model," B. Moritz, Y. Wang, C.J. Jia, C.-C. Chen, M. van Veenendaal, T. P. Devereaux, and K. Wohlfeld, APS March Meeting, San Antonio, TX (March 2015)

C-77 "RIXS study on the doping dependence of elementary excitations across AFM-SC phase boundary in electron-doped cuprates," W.-S. Lee, S. Gerber, Y. B. Huang, G. Yu, B. Moritz, H. Y. Huang, R. P. Wang, W. B. Wu, V. N. Strocov, E. M. Motoyama, C. T. Chen, D. J. Huang, M. Greven, T. Schmitt, Z.-X. Shen, and T. P. Devereaux, APS March Meeting, San Antonio, TX (March 2015)

C-76 "What does resonant inelastic x-ray scattering at the Cu $L$-edge measure?," C.J. Jia, B. Moritz, T. P. Devereaux, and K. Wohlfeld, APS March Meeting, San Antonio, TX (March 2015)

C-75 "Photoinduced dynamics of charge density waves in Mott-Peierls systems," Y. Wang, C.-C. Chen, C.J. Jia, M. van Veenendaal, T. P. Devereaux, and B. Moritz, APS March Meeting, San Antonio, TX (March 2015)

C-74 "Fidelity study of superconductivity in extended Hubbard models," N. Plonka, C.J. Jia, B. Moritz, Y. Wang, and T. P. Devereaux, APS March Meeting, San Antonio, TX (March 2015)

C-73 "Amplitude mode oscillations in pump-probe photoemission spectra of electron-phonon mediated superconductors," A. F. Kemper, M. Sentef, B. Moritz, J. K. Freericks, and T. P. Devereaux, APS March Meeting, San Antonio, TX (March 2015)

C-72 "Turning a strongly correlated Mott insulator into a weakly correlated metal," Y. F. Kung, E. A. Nowadnick, C.J. Jia, S. Johnston, B. Moritz, and T. P. Devereaux, APS March Meeting, San Antonio, TX (March 2015)

C-71 "Stability of the AFM phase in the three-band Hubbard-Holstein model," E. Huang, S. Johnston, Y. F. Kung, B. Moritz, and T. P. Devereaux, APS March Meeting, San Antonio, TX (March 2015)

C-70 "Charge-orbital-lattice coupling in a quasi-one-dimensional cuprate revealed through energy shifts in the $dd$-excitation profile," B. Moritz, J. J. Lee, W.-S. Lee, M. Yi, C.J. Jia, A. P. Sorini, K. Kudo, Y. Koike, K.J. Zhou, C. Monney, V. Strocov, L. Patthey, T. Schmitt, Z.-X. Shen, and T. P. Devereaux, APS March Meeting, Denver, CO (March 2014)

C-69 "Persistent spin excitations in doped cuprates revealed by resonant inelastic light scattering," C.J. Jia, E. A. Nowadnick, K. Wohlfeld, Y. F. Kung, C.-C. Chen, S. Johnston, T. Tohyama, B. Moritz, and T. P. Devereaux, APS March Meeting, Denver, CO (March 2014)

C-68 "Photo-induced topological phase transition in graphene studied by exact simulation of pump-probe photoemission spectroscopy," M. Sentef, A. F. Kemper, B. Moritz, J. K. Freericks, and T. P. Devereaux, APS March Meeting, Denver, CO (March 2014)

C-67 "Ultrafast transient decoupling and multi-phonon effects in driven electron-phonon systems," A. F. Kemper, M. Sentef, B. Moritz, J. K. Freericks, and T. P. Devereaux, APS March Meeting, Denver, CO (March 2014)

C-66 "Charge and magnetic excitations in hole- and electron-doped infinite layer cuprate superconductors," G. Dellea, L. Maritato, A. Galdi, P. Orgiani, D. G. Schlom, D. Di Castro, A. Tebano, G. Balestrino, C. Aruta, M. Moretti Sala, N. B. Brookes, C.J. Jia, B. Moritz, T. P. Devereaux, M. Minola, C. Mazzoli, L. Braicovich, and G. Ghiringhelli, APS March Meeting, Denver, CO (March 2014)

C-65 "Competition between the pseudogap and superconductivity and its critical point," M. Hashimoto, E. A. Nowadnick, R.-H. He, I. M. Vishik, B. Moritz, Y. He, K. Tanaka, R. G. Moore, D.H. Lu, Y. Yoshida, M. Ishikado, T. Sasagawa, K. Fujita, S. Ishida, S. Uchida, H. Eisaki, Z. Hussain, T. P. Devereaux, and Z.-X. Shen, APS March Meeting, Denver, CO (March 2014)

C-64 "Exploration of pseudogap scenarios in the three-orbital Hubbard model of cuprate superconductors," Y.F. Kung, C.-C. Chen, E.A. Nowadnick, S. Johnston, B. Moritz, and T.P. Devereaux, APS March Meeting, Denver, CO (March 2014)

C-63 "Doping dependence of dispersion renormalizations in strongly correlated materials with electron-phonon coupling," E. A. Nowadnick, S. Johnston, B. Moritz, R. T. Scalettar, and T. P. Devereaux, APS March Meeting, Denver, CO (March 2014)

C-62 "Magnetic and chiral excitations in resonant Raman scattering," T. P. Devereaux, C.J. Jia, Y. Wang, B. Moritz, and R. Hackl, APS March Meeting, Denver, CO (March 2014)

C-61 "Real space visualization of Mott gap and magnon excitations," Y. Wang, C.J. Jia, B. Moritz, and T. P. Devereaux, APS March Meeting, Denver, CO (March 2014)

C-60 "Phase transformation and electronic structure characterization of $Li_xFePO_4$ by *ab initio* calculations and soft x-ray spectroscopy," Y. J. Wang, B. Barbiellini, X. Liu, R. Qiao, B. Moritz, T. P. Devereaux, H. Lin, Z. Hussain, W.L. Yang, and A. Bansil, APS March Meeting, Denver, CO (March 2014)

C-59 "Correlation tuned cross-over between thermal and nonthermal states following ultrafast transient pumping," B. Moritz, J. K. Freericks, T. P. Devereaux, M. Sentef, and A. F. Kemper, International Workshop on Strong Correlations and Angle-Resolved Photoemission Spectroscopy (CORPES13), Hamburg, Germany (July/August 2013)

C-58 "Charge density wave melting in a correlated system: real-time dynamics in the Hubbard-Holstein model," B. Moritz, C.-C. Chen, T. P. Devereaux, and M. van Veenendaal, APS March Meeting, Baltimore, MD (March 2013)

C-57 "Phonon-mode couplings studied by pump-probe photoemission," M. Sentef, A. F. Kemper, B. Moritz, J. K. Freericks, Z.-X. Shen, and T. P. Devereaux, APS March Meeting, Baltimore, MD (March 2013)

C-56 "Ultrafast imaging of real space response functions," Y. Wang, C.J. Jia, B. Moritz, and T. P. Devereaux, APS March Meeting, Baltimore, MD (March 2013)

C-55 "Resonant inelastic soft x-ray scattering as a site-specific probe of electron-phonon coupling in one-dimensional edge-shared cuprates," S. Johnston, W.S. Lee, B. Moritz, J. van den Brink, Z.-X. Shen, and T. P. Devereaux, APS March Meeting, Baltimore, MD (March 2013)

C-54 "Quantum Monte Carlo simulations of ARPES spectra on correlated materials with electron-phonon coupling," E. A. Nowadnick, S. Johnston, B. Moritz, R. T. Scalettar, and T. P. Devereaux, APS March Meeting, Baltimore, MD (March 2013)

C-53 "Temperature and doping dependence of spectral features in determinant quantum Monte Carlo studies of the three-orbital Hubbard model of cuprate superconductors," Y.F. Kung, E.A. Nowadnick, S. Johnston, C.-C. Chen, B. Moritz, and T.P. Devereaux, APS March Meeting, Baltimore, MD (March 2013)

C-52 "Doping evolution of oxygen $K$-edge x-ray absorption spectra in cuprate superconductors," C.-C. Chen, M. Sentef, Y. F. Kung, C.J. Jia, R. Thomale, B. Moritz, A. Kampf, and T. P. Devereaux, APS March Meeting, Baltimore, MD (March 2013)

C-51 "ARPES studies of underdoped (Ba,K)$Fe_2As_2$ iron-based superconductors," M. Yi, D.H. Lu, Y.T. Cui, M. Hashimoto, B. Moritz, H.H. Wen, T. P. Devereaux, and Z.-X. Shen, APS March Meeting, Baltimore, MD (March 2013)

C-50 "Using photon to probe spin excitations," C.J. Jia, C.-C. Chen, B. Moritz, and T. P. Devereaux, APS March Meeting, Baltimore, MD (March 2013)

C-49 "Electron-phonon coupling in 1D edge-shared cuprates probed by resonant soft x-ray scattering," S. Johnston, W.-S. Lee, B. Moritz, J. van den Brink, Z.-X. Shen, and T. P. Devereaux, $14^{\text{th}}$ Annual Meeting of the Northwest Section of the APS, Vancouver, British Columbia, Canada (October 2012)

C-48 "Modeling time domain spectroscopy of electron-phonon coupled systems out of equilibrium," M. A. Sentef, A. F. Kemper, B. Moritz, and T. P. Devereaux, APS March Meeting, Boston, MA (February/March 2012)

C-47 "Modeling lattice interaction in non-equilibrium pump-probe experiments," A. F. Kemper, M. A. Sentef, B. Moritz, and T. P. Devereaux, APS March Meeting, Boston, MA (February/March 2012)

C-46 "Time-dependent recovery of charge and spin order in striped nickelate," Y.F. Kung, C.-C. Chen, A. F. Kemper, W.-S. Lee, B. Moritz, A. P. Sorini, Z.-X. Shen, and T. P. Devereaux, APS March Meeting, Boston, MA (February/March 2012)

C-45 "Numerical study of magnetic excitations probed by photon spectroscopies in families of high-temperature superconductors," C.J. Jia, C.-C. Chen, B. Moritz, A. P. Sorini, and T. P. Devereaux, APS March Meeting, Boston, MA (February/March 2012)

C-44 "Spectral properties of correlated systems with electron-phonon coupling," E. A. Nowadnick, S. Johnston, A. Mishchenko, B. Moritz, N. Nagaosa, and T. P. Devereaux, APS March Meeting, Boston, MA (February/March 2012)

C-43 "Pulsed-field pump-probe response in correlated electron systems," B. Moritz, SLAC Scientific Computing Workshop, SLAC National Accelerator Laboratory, Menlo Park, CA (June 2011)

C-42 "Pulsed-field pump-probe response in correlated systems," B. Moritz, T. P. Devereaux, and J. K. Freericks, APS March Meeting, Dallas, TX (March 2011)

C-41 "Time-dependent recovery of charge and spin order in stripe-ordered nickelates," Y.F. Kung, A. F. Kemper, W.-S. Lee, B. Moritz, A. P. Sorini, Z.-X. Shen, and T. P. Devereaux, APS March Meeting, Dallas, TX (March 2011)

C-40 "Modeling pump-probe spectroscopy in systems with electron-phonon coupling," A. F. Kemper, B. Moritz, and T. P. Devereaux, APS March Meeting, Dallas, TX (March 2011)

C-39 "Comparison between resonant inelastic X-ray scattering and the dynamical structure factor," C. J. Jia, C.-C. Chen, B. Moritz, A. P. Sorini, and T. P. Devereaux, APS March Meeting, Dallas, TX (March 2011)

C-38 "Revealing the degree of magnetic frustration in iron pnictides," C.-C. Chen, R. Applegate, B. Moritz, T. P. Devereaux, and R. R. P. Singh, APS March Meeting, Dallas, TX (March 2011)

C-37 "Raman response in density wave materials," E. A. Nowadnick, A. F. Kemper, B. Moritz, and T. P. Devereaux, APS March Meeting, Dallas, TX (March 2011)

C-36 "Pump-probe photoemission spectroscopy of nonequilibrium correlated electrons," B. Moritz, T. P. Devereaux, and J. K. Freericks, APS March Meeting, Portland, OR (March 2010)

C-35 "Determinant quantum Monte Carlo studies of the single-band Hubbard-Holstein model," S. Johnston, B. Moritz, R. T. Scalettar, and T. P. Devereaux, APS March Meeting, Portland, OR (March 2010)

C-34 "The role of the z-map in observations of quasiparticle interference in the cuprates," E. A. Nowadnick, B. Moritz, and T. P. Devereaux, APS March Meeting, Portland, OR (March 2010)

C-33 "The physics of coupled spin-orbital degrees of freedom and Fe-pnictides," C.-C. Chen, B. Moritz, T. P. Devereaux, J. van den Brink, and R. R. P. Singh, APS March Meeting, Portland, OR (March 2010)

C-32 "Exact diagonalization study of superconductivity in the 2D Hubbard model," C. J. Jia, C.-C. Chen, B. Moritz, T. P. Devereaux, and S. Shastry, APS March Meeting, Portland, OR (March 2010)

C-31 "Evidence for weak electronic correlations in Fe pnictides," A. P. Sorini, W.L. Yang, C.-C. Chen, B. Moritz, W.-S. Lee, J.-H. Chu, J. G. Analytis, I. R. Fisher, B. Delley, F. Vernay, P. Olalde-Velasco, J. D. Denlinger, Z. Hussain, J. Yang, W. Lu, Z. X. Zhao, Z. A. Ren, J. van den Brink, Z.-X. Shen, and T. P. Devereaux, APS March Meeting, Portland, OR (March 2010)

C-30 "High energy scales in e-doped HTSCs observed with ARPES," F. Schmitt, B. Moritz, S. Johnston, E. M. Motoyama, M. Greven, D. H. Lu, R. G. Moore, T. P. Devereaux, Z.-X. Shen, and R. T. Scalettar, APS March Meeting, Portland, OR (March 2010)

C-29 "Doping-dependent laser-ARPES studies on Bi-2212," I. M. Vishik, W.-S. Lee, F. Schmitt, B. Moritz, T. Sasagawa, S. Uchida, K. Fujita, S. Ishida, C. Zhang, T. P. Devereaux, and Z.-X. Shen, APS March Meeting, Portland, OR (March 2010)

C-28 "Temporal response of nonequilibrium correlated electrons," B. Moritz, T. P. Devereaux, and J. K. Freericks, Conference on Computational Physics 2009, Kaohsiung, Taiwan (December 2009)

C-27 "Evaluation of time-resolved photoemission spectra from nonequilibrium, time-domain Green functions," B. Moritz, T. P. Devereaux, H. R. Krishnamurthy, and J. K. Freericks, APS March Meeting, Pittsburgh, PA (March 2009)

C-26 "Momentum-resolved Cu $K$-edge RIXS spectra in the insulating parent compounds of high-$T_{\mathrm{c}}$ superconductors," C.-C. Chen, B. Moritz, F. Vernay, S. Johnston, J. Hancock, G. Chabot-Couture, M. Greven, I. Elfimov, G. A. Sawatzky, and T. P. Devereaux, APS March Meeting, Pittsburgh, PA (March 2009)

C-25 "Quasiparticle scattering from impurities in the cuprates," E. A. Nowadnick, I. M. Vishik, B. Moritz, W.-S. Lee, Z.-X. Shen, T. P. Devereaux, and K. Tanaka, APS March Meeting, Pittsburgh, PA (March 2009)

C-24 "Quasiparticles in Bi-2212," I. M. Vishik, W.-S. Lee, K. Tanaka, B. Moritz, E. A. Nowadnick, T. Sasagawa, T. Fujii, T. P. Devereaux, and Z.-X. Shen, APS March Meeting, Pittsburgh, PA (March 2009)

C-23 "Universal high energy anomaly revealed by DQMC simulations of the Hubbard model," B. Moritz, S. Johnston, T. P. Devereaux, R. T. Scalettar, Z.-X. Shen, C. Kim, W. Meevasana, and F. Schmitt, APS March Meeting, New Orleans, LA (March 2008)

C-22 "Spectral properties of the Hubbard-Holstein model and comparison to ARPES experiments in the copper oxides," B. Moritz, A. Macridin, E. Khatami, F. Vernay, T. Maier, T. Devereaux, and M. Jarrell, APS March Meeting, Denver, CO (March 2007)

C-21 "Role of phonons in heavy fermion volume collapse within the periodic Anderson model," M. A. Majidi, J. Moreno, B. Moritz, A. Macridin, M. Jarrell, and A. K. McMahan, APS March Meeting, Denver, CO (March 2007)

C-20 "Analysis of the dynamical cluster approximation for the triangular lattice Hubbard model," C. Varney, R. Scalettar, M. Jarrell, A. Macridin, and B. Moritz, APS March Meeting, Denver, CO (March 2007)

C-19 "Cu $K$-edge resonant inelastic X-ray scattering in edge-sharing cuprates," T. P. Devereaux, F. Vernay, B. Moritz, and G. Sawatzky, APS March Meeting, Denver, CO (March 2007)

C-18 "The effect of disorder and short-range correlations on ferromagnetism in dilute magnetic semiconductors," B. Moritz, K. Mikelsons, J. Moreno, M. Jarrell, and R. S. Fishman, APS March Meeting, Baltimore, MD (March 2006)

C-17 "Spatial correlations, spin-orbit coupling, and ferromagnetism in Ga(Mn)As," K. Mikelsons, B. Moritz, S. Kancharla, J. Moreno, R. S. Fishman, and M. Jarrell, APS March Meeting, Baltimore, MD (March 2006)

C-16 "Optimizing materials for spintronic device applications," J. Moreno, B. Moritz, K. Mikelsons, S. Kancharla, M. Jarrell, and R. S. Fishman, University of North Dakota 2006 Scholarly Forum, Grand Forks, ND (February 2006)

C-15 "Relevance of short-range correlations on the ferromagnetic order of dilute magnetic semiconductors," B. Moritz, K. Mikelsons, J. Moreno, M. Jarrell, and R. S. Fishman, APS March Meeting, Los Angeles, CA (March 2005)

C-14 "Hierarchical lattice models with evidence of metallic conductance: implications for localization," B. Moritz and W. Schwalm, APS March Meeting, Los Angeles, CA (March 2005)

C-13 "Magnetic properties of ferromagnetic semiconductors: finding the optimal material parameters for spintronic device applications," B. Moritz, J. Moreno, M. Jarrell, R. S. Fishman, and K. Mikelsons, University of North Dakota 2005 Scholarly Forum, Grand Forks, ND (February 2005)

C-12 "Fractal models for quantum behavior of amorphous materials," W. Schwalm and B. Moritz, University of North Dakota 2005 Scholarly Forum, Grand Forks, ND (February 2005)

C-11 "Topological model of coupled electromagnetic and elastic fields," W. Schwalm, M. Schwalm, and B. Moritz, APS March Meeting, Indianapolis, IN (March 2002)

C-10 "Complete solution of dynamical system associated with Ashkin-Teller lattice model," B. Moritz, W. Schwalm, and M. Schwalm, APS March Meeting, Seattle, WA (March 2001)

C-9 "Topological model of small polaron dynamics in 2D," S. Crockett, W. Schwalm, and B. Moritz, APS March Meeting, Seattle, WA (March 2001)

C-8 "Green functions for the modified rectangle lattice of Dhar," C. Reese, W. Schwalm, and B. Moritz, APS March Meeting, Seattle, WA (March 2001)

C-7 "Topological lattice model of electron coupled to a classical polarization field," W. Schwalm, S. Crockett, and B. Moritz, $48^{\text{th}}$ Annual Midwest Solid State Conference and the Midwest Solid State Theory Symposium, University of North Dakota, Grand Forks, ND (October 2000)

C-6 "Dynamics of Cremona maps from physical models," W. Schwalm, B. Moritz, and M. Schwalm, $48^{\text{th}}$ Annual Midwest Solid State Conference and the Midwest Solid State Theory Symposium, University of North Dakota, Grand Forks, ND (October 2000)

C-5 "Triangle lattice Green functions for vector fields," B. Moritz and W. Schwalm, APS March Meeting, Minneapolis, MN (March 2000)

C-4 "Green functions for general lattice models," W. Schwalm, B. Moritz, M. Schwalm, and M. Giona, APS March Meeting, Minneapolis, MN (March 2000)

C-3 "A vector calculus for physical lattice models: applications to fluid dynamics and transport," M. Giona, W. Schwalm, A. Adrover, M. Schwalm, and B. Moritz, The $4^{\text{th}}$ Italian Conference on Chemical and Process Engineering, Florence, Italy (May 1999)

C-2 "Analysis of full vector Maxwell electromagnetic equations in random structures using vector difference calculus," B. Moritz, W. Schwalm, and S. Hewitt, APS Centennial Meeting, Atlanta, GA (March 1999)

C-1 "Lattice analog of differential forms," W. Schwalm, B. Moritz, M. Schwalm, M. Giona, and A. Adrover, APS Centennial Meeting, Atlanta, GA (March 1999)

**Posters**

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P-80 "A computational study of time-resolved resonant inelastic x-ray scattering," Y. Chen, Y. Wang, B. Moritz, and T. P. Devereaux, APS March Meeting, New Orleans, LA (March 2017)

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P-2 "Discrete mathematics of fields and fluid flows," B. Moritz and W. Schwalm, Joint ND-SD EPSCoR Conference, North Dakota State University, Fargo, ND (September 1999)

P-1 "Physics and algebraic topology," W. Schwalm, B. Moritz, and M. Schwalm, Joint ND-SD EPSCoR Conference, North Dakota State University, Fargo, ND (September 1999)