



Academic Curriculum Vitae

- *27.11.1976** Born in Berlin, Germany
- 1999 - 2004** Study of Physics, Freie Universität Berlin
- 2002** Desy Summer Student at the HeraB detector in Hamburg, Germany. Analysis of Pions and Gammas in the Electromagnetic Calorimeter (HeraB note 02-077)
- 2003 - 2004** Physics diploma in the group of Prof. Dr. M. Wolf at the Fachbereich Physik der Freien Universität Berlin with the topic „*Ultrakurzzeitdynamik von Elektronentransferprozessen im Adsorbatsystem $C_6F_6/Cu(111)$ / Ultrafast Dynamics of Electron Transfer Processes in the Adsorbate System $C_6F_6/Cu(111)$* “.
- 2005 - 2009** Student member of the International Max-Planck Research School Complex Surfaces in Materials Science (IMPRS-CS) in Berlin.
- 2004 - 2009** PhD studies regarding the „*Ultrafast Electron Dynamics in Low-Dimensional Materials*“ in the group of Prof. Dr. M. Wolf at the Fachbereich Physik, Freie Universität Berlin. The thesis was defended on the 9th of February 2009 and graded with “summa cum laudae” (excellent).
- 2009 - 2011** Feodor-Lynen fellow of the Alexander-von-Humboldt Foundation
- 04/2009 - 04/2011** Postdoctoral studies in Prof. Z.-X Shen’s group at the Stanford Institute for Materials and Energy Science (SIMES) concerning the dynamics of strongly correlated electron systems by time- and angle-resolved photoemission spectroscopy.
- 04/2011 – 08/2012** Group leader in Prof. Martin Wolf’s Department of Physical Chemistry at the Fritz Haber Institute of the Max Planck Society. Leading the Dynamics of Correlated Materials Group in designing, building, and commissioning an advanced setup for angle and time-resolved photoemission spectroscopy experiments on complex materials
- 08/2012 – 05/2017** Associate Staff Scientist in Prof. Z.-X. Shen’s group at the Stanford Institute for Materials and Energy Science (SIMES) at the SLAC National Accelerator Laboratory.
- 05/2017 – present** Staff Scientist at SIMES/SLAC. Leading the femtosecond time-resolved photoemission group in experiments on quantum materials such as topological insulators and novel superconductors. Designing, building, and commissioning new ultrafast light sources for time-resolved photoemission experiments. Support of joint projects using ultrafast x-ray diffraction at SLAC’s Linear Coherent Light Source (LCLS)

Peer-Reviewed Publications

P. S. Kirchmann, P.A. Loukakos, U. Bovensiepen, and M. Wolf

Ultrafast Electron Dynamics Studied with Time-Resolved Two-Photon Photoemission: Intra- and Interband Scattering in $C_6F_6/Cu(111)$

New Journal of Physics **7** (2005) 113

[DOI: 10.1088/1367-2630/7/1/113](https://doi.org/10.1088/1367-2630/7/1/113)

S. Vijayalakshmi, A. Föhlisch, P. S. Kirchmann, F. Hennies, A. Pietzsch, M. Nagasono, and W. Wurth
Bond polarization and image-potential screening in adsorbed C_6F_6 on $Cu(111)$

Surface Science **600** (2006) 4972

[DOI: 10.1016/j.susc.2006.08.017](https://doi.org/10.1016/j.susc.2006.08.017)

P. S. Kirchmann, P. Loukakos, U. Bovensiepen, M. Wolf, S. Vijayalakshmi, F. Hennies, A. Pietzsch, M. Nagasono, A. Föhlisch, and W. Wurth

Ultrafast Electron Dynamics in $C_6F_6/Cu(111)$ after Localized or Delocalized Excitation

In: *Ultrafast Phenomena XV*, Proceedings of the 15th International Conference 2006; Eds.: P. Corkum, D. Jonas, R.J.D. Miller, A.M. Weiner; Publ.: Springer Berlin-Heidelberg; ISBN: 978-3-540-68779-5, Springer Series in Chemical Physics, Vol **88** (2007) 276

P. S. Kirchmann, M. Wolf, J. H. Dil, K. Horn, and U. Bovensiepen

Quantum Size Effects in $Pb/Si(111)$ Investigated by Laser-Induced Photoemission

Physical Review. B **76** (2007) 075406

[DOI: 10.1103/PhysRevB.76.075406](https://doi.org/10.1103/PhysRevB.76.075406)

P. S. Kirchmann, L. Rettig, D. Nandi, U. Lipowski, M. Wolf, and U. Bovensiepen,

A Time-of-Flight Spectrometer for Angle-Resolved Detection of Low Energy Electrons in Two Dimensions

Applied Physics A-Materials Science & Processing **91** (2008) 211

[DOI: 10.1007/s00339-008-4422-5](https://doi.org/10.1007/s00339-008-4422-5)

P. S. Kirchmann and U. Bovensiepen

Ultrafast Electron Dynamics in $Pb/Si(111)$ Investigated by Two-Photon Photoemission

Physical Review B **78**, (2008) 035437

[DOI: 10.1103/PhysRevB.78.035437](https://doi.org/10.1103/PhysRevB.78.035437)

P. S. Kirchmann and U. Bovensiepen

Ultrafast Electron Dynamics in Quantum Well States of $Pb/Si(111)$ Investigated by Two-Photon Photoemission

In: *Ultrafast Phenomena XVI*, Proceedings of the 16th International Conference 2008. Eds.: P. Corkum, S. De Silvestri, K. Nelson, E. Riedle, & R. Schoenlein, Springer Series in Chemical Physics. Springer-Verlag Berlin, Part XIII (2009) 690.

F. Schmitt, P. S. Kirchmann, U. Bovensiepen, R. G. Moore, L. Rettig, M. Krenz, J.-H. Chu, N. Ru, L. Perfetti, D. H. Lu, M. Wolf, I. R. Fisher, and Z.-X. Shen

Effect of the Amplitude Mode and the Transient Melting of A Charge Density Wave on the Electronic Structure of TbTe₃

Science **321** (2008) 1649

[DOI: 10.1126/science.1160778](https://doi.org/10.1126/science.1160778)

P. S. Kirchmann, L. Rettig, X. Zubizarreta, V. M. Silkin, E. V. Chulkov, and U. Bovensiepen

Quasiparticle lifetimes in metallic quantum-well nanostructures

Nature Physics **6** (2010) 782

[DOI: 10.1038/nphys1735](https://doi.org/10.1038/nphys1735)

P. S. Kirchmann, L. Perfetti, M. Wolf and U Bovensiepen

Femtosecond Time- and Angle-Resolved Photoemission as a Real-time Probe of Cooperative Effects in Correlated Electron Materials

In: Dynamics at Solid State Surfaces and Interfaces, Vol. 1: Current Developments, Eds: U. Bovensiepen, H. Petek, M. Wolf, WILEY-VCH, Weinheim, Chapter 20 (2010) 475

[DOI: 10.1002/9783527633418.ch20/pdf](https://doi.org/10.1002/9783527633418.ch20/pdf)

F. Schmitt, P. S. Kirchmann, U. Bovensiepen, R. G. Moore, J.-H. Chu, D. H. Lu, M. Wolf, I. R. Fisher, and Z.-X. Shen

Ultrafast Electron Dynamics in the Charge Density Wave Material TbTe₃

New Journal of Physics **13** (2011) 063022

[DOI: 10.1088/1367-2630/13/6/063022](https://doi.org/10.1088/1367-2630/13/6/063022)

A. Föhlisch, S. Vijayalakshmia, A. Pietzsch, M. Nagasonoa, W. Wurth, P. S. Kirchmann, P. A. Loukakos, U. Bovensiepen, M. Wolf, M. Tchapyguine, and F. Hennies

Charge transfer dynamics in molecular solids and adsorbates driven by local and non-local excitations

Surface Science **606** (2012) 881

[DOI: 10.1016/j.susc.2011.12.014](https://doi.org/10.1016/j.susc.2011.12.014)

S. L. Johnson, R.A. de Souza, U. Staub, P. Beaud, E. Möhr-Vorobeva, G. Ingold, A. Caviezel, V. Scagnoli, W. F. Schlotter, J.J. Turner, O. Krupin, W.-S. Lee, Y.-D. Chuang, L. Patthey, R.G. Moore, D. Lu, M. Yi,

P. S. Kirchmann, M. Trigo, P. Denes, D. Doering, Z. Hussain, Z.-X. Shen, D. Prabhakaran, and A.T. Boothroyd
Femtosecond Dynamics of the Collinear-to-Spiral Antiferromagnetic Phase Transition in CuO

Physical Review Letters **108** (2012) 037203

[DOI: 10.1103/PhysRevLett.108.037203](https://doi.org/10.1103/PhysRevLett.108.037203)

L. Rettig, P. S. Kirchmann, and U. Bovensiepen

Ultrafast dynamics of occupied quantum well states in Pb/Si(111)

New Journal of Physics **14** (2012) 023047

[DOI: 10.1088/1367-2630/14/2/023047](https://doi.org/10.1088/1367-2630/14/2/023047)

U. Bovensiepen and P. S. Kirchmann

Elementary relaxation processes investigated by femtosecond photoelectron spectroscopy of two-dimensional materials

Laser & Photonics Reviews **6** (2012) 589

[DOI: 10.1002/lpor.201000035](https://doi.org/10.1002/lpor.201000035)

J. A. Sobota,, S. Yang, J. Analytis, Y. Chen, I. R. Fisher, P. S. Kirchmann, and Z.-X. Shen

Ultrafast Optical Excitation of a Persistent Surface-State Population in the Topological Insulator Bi_2Se_3

Physical Review Letters **108** (2012) 117403

[DOI: 10.1103/PhysRevLett.108.117403](https://doi.org/10.1103/PhysRevLett.108.117403)

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

Phase fluctuations and the absence of topological defects in a photo-excited charge-ordered nickelate

Nature Communications **3** (2012) 838

[DOI: 10.1038/ncomms1837](https://doi.org/10.1038/ncomms1837)

S. de Jong, R. Kukreja, C. Trabant, N. Pontius, C. F. Chang, T. Kachel, M. Beye, F. Sorgenfrei, C. H. Back, B. Bräuer, W. F. Schlotter, J. J. Turner, O. Krupin, M. Doehler, D. Zhu, M. A. Hossain, A. O. Scherz, D. Fausti, F. Novelli, M. Esposito, W. S. Lee, Y. D. Chuang, D. H. Lu, R. G. Moore, M. Yi, M. Trigo, P. Kirchmann, L. Patthey, M. S. Golden, M. Buchholz, P. Metcalf, F. Parmigiani, W. Wurth, A. Föhlisch, C. Schüßler-Langeheine, and H. A. Dürr

Speed limit of the insulator–metal transition in magnetite

Nature Materials **12** (2013) 882

[DOI: 10.1038/nmat3718](https://doi.org/10.1038/nmat3718)

Y.L. Chen, M. Kanou, Z.K. Liu, H.J. Zhang, J.A. Sobota, D. Leuenberger, S.K. Mo, B. Zhou, S-L. Yang, P.S. Kirchmann, D.H. Lu, R.G. Moore, Z. Hussain, Z.-X. Shen, X.L. Qi, and T. Sasagawa

Discovery of a single topological Dirac fermion in the strong inversion asymmetric compound BiTeCl

Nature Physics **9** (2013) 704

[DOI:10.1038/nphys2768](https://doi.org/10.1038/nphys2768)

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. Foerst, D. Doering, P. Denes, W. F. Schlotter, J. J. Turner, T. Sasagawa, Z. Hussain, Z. X. Shen, and T. P. Devereaux

Real-Time Manifestation of Strongly Coupled Spin and Charge Order Parameters in Stripe-Ordered $\text{La}_{1.75}\text{Sr}_{0.25}\text{NiO}_4$ Nickelate Crystals Using Time-Resolved Resonant X-Ray Diffraction

Physical Review Letters **110** (2013) 127404

[DOI: 10.1103/PhysRevLett.110.127404](https://doi.org/10.1103/PhysRevLett.110.127404)

J. A. Sobota, S.-L. Yang, A. F. Kemper, J. J. Lee, F. T. Schmitt, W. Li, R. G. Moore, J. G. Analytis, I. R. Fisher, P. S. Kirchmann, T. P. Devereaux, and Z.-X. Shen

Direct Optical Coupling to an Unoccupied Dirac Surface State in the Topological Insulator Bi_2Se_3

Physical Review Letters **111** (2013) 136802

[DOI: 10.1103/PhysRevLett.111.136802](https://doi.org/10.1103/PhysRevLett.111.136802)

S.-L. Yang, J. A. Sobota, P. S. Kirchmann, and Z.-X. Shen

Electron propagation from a photo-excited surface: implications for time-resolved photoemission

Applied Physics A **116** (2014) 85

[DOI: 10.1007/s00339-013-8154-9](https://doi.org/10.1007/s00339-013-8154-9)

S.-L. Yang, J. A. Sobota, C. A. Howard, C. J. Pickard, M. Hashimoto, D. H. Lu, S.-K. Mo, P. S. Kirchmann, and Z.-X. Shen

Superconducting graphene sheets in CaC_6 enabled by phonon-mediated interband interactions

Nature Communications **5** (2014) 3493

[DOI: 10.1038/ncomms4493](https://doi.org/10.1038/ncomms4493)

U. Staub, R. A. de Souza, P. Beaud, E. Möhr-Vorobeva, G. Ingold, A. Caviezel, V. Scagnoli, B. Delley, W. F. Schlotter, J. J. Turner, O. Krupin, W.-S. Lee, Y.-D. Chuang, L. Patthey, R. G. Moore, D. H. Lu, M. Yi, P. S. Kirchmann, M. Trigo, P. Denes, D. Doering, Z. Hussain, Z. X. Shen, D. Prabhakaran, A. T. Boothroyd, and S. L. Johnson

Persistence of magnetic order in a highly excited Cu^{2+} state in CuO

Physical Review B **89** (2014) 220401

[DOI: 10.1103/PhysRevB.89.220401](https://doi.org/10.1103/PhysRevB.89.220401)

J. A. Sobota, S.-L. Yang, D. Leuenberger, A. F. Kemper, J. G. Analytis, I. R. Fisher, P. S. Kirchmann, T. P. Devereaux, and Z.-X. Shen

Ultrafast electron dynamics in the topological insulator Bi_2Se_3 studied by time-resolved photoemission spectroscopy

Journal of Electron Spectroscopy and Related Phenomena **195** (2014) 249

[DOI: 10.1016/j.elspec.2014.01.005](https://doi.org/10.1016/j.elspec.2014.01.005)

J. A. Sobota, S.-L. Yang, D. Leuenberger, A. F. Kemper, J. G. Analytis, I. R. Fisher, P. S. Kirchmann, T. P. Devereaux, and Z.-X. Shen

Distinguishing Bulk and Surface Electron-Phonon Coupling in the Topological Insulator Bi_2Se_3 Using Time-Resolved Photoemission Spectroscopy

Physical Review Letters **113** (2014) 157401

[DOI: 10.1103/PhysRevLett.113.157401](https://doi.org/10.1103/PhysRevLett.113.157401)

D. Leuenberger, J. A. Sobota, S.-L. Yang, A. F. Kemper, P. Giraldo-Gallo, R. G. Moore, I. R. Fisher, P. S. Kirchmann, T. P. Devereaux, and Z.-X. Shen

Classification of Collective Modes in a Charge Density Wave by Momentum-Dependent Modulation of the Electronic Band Structure

Physical Review B **91** (2015) 201106(R)

[DOI: 10.1103/PhysRevB.91.201106](https://doi.org/10.1103/PhysRevB.91.201106)

S.-L. Yang, J. A. Sobota, D. Leuenberger, A. F. Kemper, J. J. Lee, F. T. Schmitt, W. Li, R. G. Moore, P. S. Kirchmann, and Z.-X. Shen

Thickness-Dependent Coherent Phonon Frequency in Ultrathin FeSe/SrTiO₃ Films

Nano Lett. **15** (2015) 4150

[DOI: 10.1021/acs.nanolett.5b01274](https://doi.org/10.1021/acs.nanolett.5b01274)

S.-L. Yang, J. A. Sobota, D. Leuenberger, Y. He, M. Hashimoto, D. H. Lu, H. Eisaki, P. S. Kirchmann, and Z.-X. Shen

Inequivalence of Single-Particle and Population Lifetimes in a Cuprate Superconductor

Phys. Rev. Lett. **114** (2015) 247001

[DOI: 10.1103/PhysRevLett.114.247001](https://doi.org/10.1103/PhysRevLett.114.247001)

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. Glowia, 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

Direct Characterization of Photoinduced Lattice Dynamics in BaFe₂As₂

Nature Comms. **6** (2015) 7377

[DOI: 10.1038/ncomms8377](https://doi.org/10.1038/ncomms8377)

R. G. Moore, W. S. Lee, P. S. Kirchman, Y. D. Chuang, A. F. Kemper, M. Trigo, L. Patthey, D. H. Lu, O. Krupin, M. Yi, D. A. Reis, D. Doering, P. Denes, W. F. Schlotter, J. J. Turner, G. Hays, P. Hering, T. Benson, J.-H. Chu, T. P. Devereaux, I. R. Fisher, Z. Hussain, and Z.-X. Shen

Ultrafast resonant soft x-ray diffraction dynamics of the charge density wave in TbTe₃

Phys. Rev. B **93** (2016) 024304

[DOI: 10.1103/PhysRevB.93.024304](https://doi.org/10.1103/PhysRevB.93.024304)

L. Rettig, R. Cortes, J.-H. Chu, I. R. Fisher, F. Schmitt, R. G. Moore, Z.-X. Shen, P. S. Kirchmann, M. Wolf, and U. Bovensiepen

Persistent Order due to Transiently Enhanced Nesting in an Electronically Excited Charge Density Wave

Nature Comms. **7** (2016) 10459

[DOI: 10.1038/ncomms10459](https://doi.org/10.1038/ncomms10459)

Y. He, I. M. Vishik, M. Yi, S.-L. Yang, Z. Liu, J. J. Lee, S. Chen, S. N. Rebec, D. Leuenberger, A. Zong, C. M. Jefferson, R. G. Moore, P. S. Kirchmann, A. J. Merriam, and Z.-X. Shen

Invited Article: High resolution angle resolved photoemission with tabletop 11 eV laser

Rev. Sci. Instrum. **87** (2016) 011301

[DOI: 10.1063/1.4939759](https://doi.org/10.1063/1.4939759)

R. G. Moore, W. S. Lee, P. S. Kirchman, Y. D. Chuang, A. F. Kemper, M. Trigo, L. Patthey, D. H. Lu, O. Krupin, M. Yi, D. A. Reis, D. Doering, P. Denes, W. F. Schlotter, J. J. Turner, G. Hays, P. Hering, T. Benson, J.-H. Chu, T. P. Devereaux, I. R. Fisher, Z. Hussain, and Z.-X. Shen

Ultrafast resonant soft x-ray diffraction dynamics of the charge density wave in TbTe₃

Phys. Rev. B **93** (2016) 024304

[DOI: 10.1103/PhysRevB.93.024304](https://doi.org/10.1103/PhysRevB.93.024304)

Dr. Patrick S. Kirchmann
Staff Scientist
Stanford Institute for Materials and Energy Science (SIMES)
SLAC National Accelerator Laboratory & Stanford University
2575 Sand Hill Road
Menlo Park, CA 94025-7015, USA

Menlo Park, March 2017



S. Gerber, S.-L. Yang, D. Zhu, H. Soifer, J. A. Sobota, S. Rebec, J. J. Lee, T. Jia, B. Moritz, C. 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. Glowina, S. Nelson, K. W. Kim, Y.-D. Chuang, Z. Hussain, R. G. Moore, T. P. Devereaux, W.-S. Lee, P. S. Kirchmann, Z.-X. Shen

Femtosecond electron-phonon lock-in via photoemission and x-ray free-electron laser
Science (2017)

H. Xiong, J.A. Sobota, S.-L. Yang, H. Soifer, A. Gauthier, M.-H. Lu, Y.-Y. Lv, S.-H. Yao, D. Lu, M. Hashimoto, P.S. Kirchmann, Y.-F. Chen, and Z.-X. Shen

Three-dimensional nature of the band structure of ZrTe₅ measured by high-momentum-resolution photoemission spectroscopy

Phys. Rev. B **95** (2017) 195119

[DOI: 10.1103/PhysRevB.95.195119](https://doi.org/10.1103/PhysRevB.95.195119)

Participation at Conventions and Selected Presentations:

2004

DPG Spring Meeting, Regensburg, Germany

Electron Dynamics of C₆F₆/Cu(111) Studied by Time Resolved Photoelectron and Resonant Auger Raman Spectroscopy

2005

DPG Spring Meeting, Berlin, Germany

Ultrafast Electron Dynamics in C₆F₆/Cu(111) Analyzed with Time-Resolved Photoelectron and Resonant Auger-Raman Spectroscopy

23rd European Conference on Surface Science (ECOSS 23), Berlin, Germany

Ultrafast Charge Transfer Dynamics in C₆F₆/Cu(111) Studied with Time-Resolved Two-Photon Photoemission and High-Resolution Autoionization Spectroscopy

355th Wilhelm und Else Heraeus-Seminar, Ultrafast Dynamics of Collective Excitations in Solids, Vitte, Hiddensee, Germany

Ultrafast Charge Transfer Dynamics in C₆F₆/Cu(111) Studied with Time-Resolved Two-Photon Photoemission and High-Resolution Autoionization Spectroscopy

2006

5th International Symposium on Ultrafast Surface Dynamics and 46th IUVSTA Workshop, Abashiri, Japan
Quantum Well States of Ultrathin Epitaxial Pb Films on Si(111) Investigated with Time-Resolved 2PPE

15th International Conference on Ultrafast Phenomena, (UP15), Pacific Grove, California, USA

Ultrafast Electron Dynamics in C₆F₆/Cu(111) after a Localized or Delocalized Excitation

2007

1st Workshop of the International Max-Planck-Research-School Complex Surfaces in Materials Science, Ringberg, Germany:

Electron Scattering Processes in 1D and 2D Investigated by Time-Resolved Two-Photon-Photoemission

Winter School on Ultrafast Processes in Condensed Matter (WUPCOM'07), Reit im Winkl, Germany

A novel k-Resolving Time-of-Flight Electron Spectrometer for the Use in Surface Science

2008

DPG Spring Meeting, Berlin, Germany

Ultrafast Electron Dynamics in Pb/Si(111) Investigated by Two-Photon Photoemission, and An Angle-Resolved Time-of-Flight Spectrometer for Low-Energy Photoelectron Spectroscopy



16th International Conference on Ultrafast Phenomena, (UP16), Stresa, Laggo Maggiore, Italy
Ultrafast Electron Dynamics in Quantum Well States of Pb/Si(111) Investigated by Two-Photon Photoemission

6th International Symposium on Ultrafast Surface Dynamics (USD6), Kloster Banz, Germany
Collective Excitations of CDW Compound TbTe₃ Analyzed by Time- and Angle-Resolved Photoemission Spectroscopy

2009

Winter School on Ultrafast Processes in Condensed Matter (WUPCOM'09), Reit im Winkl, Germany
Transient electronic structure and ultrafast melting of a charge density wave in TbTe₃

Gordon Research Conference on Dynamics at Surfaces, Proctor Academy in Andover, NH, USA
Quasi-Particle Lifetimes in Quantum Well Nanostructures

2010

DPG Spring Meeting, Regensburg, Germany
Probing the Momentum-Dependent Response of the Charge Density Wave Phase in TbTe₃ by Ultrafast Time- and Angle-Resolved Photoemission OR How fast can you close a CDW band gap?

Gordon Research Conference on Ultrafast Phenomena in Cooperative Systems in Galveston, TX, USA
Ultrafast Response and Anisotropic Electron-Phonon Coupling in the Charge Density Wave Material TbTe₃

2012

Gordon Research Conference Ultrafast Phenomena in Cooperative Systems, Galveston, TX, USA
Ultrafast Dynamics in p-type GaAs(110) Studied by Time- and Angle-Resolved Photoelectron Spectroscopy
Ultrafast Bulk and Surface Dynamics of Bi₂Se₃ Measured by Time-Resolved ARPES

DPG Spring Meeting, Berlin, Germany
Ultrafast Electron Dynamics in the Topological Insulator Material Bi₂Se₃

2014

Ultrafast Phenomena in Cooperative Systems, Ventura, CA, USA
Near Gap Excitation of the Amplitude Mode in CeTe₃
Ultrafast Electron Dynamics in a Topological Insulator Studied by trARPES
Coherent Phonons in Complex Materials
Probing electron-boson interactions in a cuprate superconductor using time- and angle-resolved photoelectron spectroscopy

2015

Stanford University Photonics Retreat (SUPR), Asilomar, CA, USA
Ultrafast Photoemission Spectroscopy for Material Science

Dr. Patrick S. Kirchmann
Staff Scientist
Stanford Institute for Materials and Energy Science (SIMES)
SLAC National Accelerator Laboratory & Stanford University
2575 Sand Hill Road
Menlo Park, CA 94025-7015, USA

Menlo Park, March 2017



The 9th International Symposium on Ultrafast Surface Dynamics (USD9), Lake Biwa, Japan
Inequivalence of Single-Particle and Population Lifetimes in a Cuprate Superconductor
Momentum and Photon Energy Dependence of Collective Modes in a Charge Density Wave
Band Structure and Switching Pathway of the Photo-Induced, Metastable State in TaS₂

APS March Meeting 2017, New Orleans, Louisiana, USA
Quantifying Electron-Phonon Coupling in FeSe by Tracking Coherent Phonons

Invited Talks

2006

10th ANCC Seminar, (National Institute of Material Science), Tsukuba, Japan

Ultrafast Electron Dynamics in Quantum Well States of Pb/Si(111) Observed by Time-Resolved Photoemission

2011

International Workshop on Elementary Processes in Solids and Interfaces: Carrier, Lattice, and Molecular Dynamics, Kloster Banz, Bad Staffelstein, Germany

Separating the Dynamics of Spin and Charge-Ordered Phases in the Nickelates Using Time-Resolved Soft X-Ray Diffraction

Max Born Institute for Nonlinear Optics and Short Pulse Spectroscopy im Forschungsverbund Berlin e.V., Berlin, Germany

The Peierls Instability in New Light: Time-Resolved Photoemission and Resonant Soft-X-Ray Diffraction on TbTe₃

Max Planck Society and University of British Columbia, Center for Quantum Materials, Vancouver, Canada

Time- and Angle-Resolved Photoemission Spectroscopy – State of the Art and Future Perspectives

2012

Donostia International Physics Center (DIPC), Donostia, Spain

Femtosecond Time-and Angle-Resolved Photoemission Spectroscopy

Department Workshop of the Physical Chemistry Department of the Fritz Haber Institute of the Max Planck Society, Seehotel Zeuthen, Germany

The Ultrafast Dynamics of Correlated Materials - Combining Time-Resolved Photoemission and Diffraction

Helmholtz Zentrum Berlin Virtual Institute „Dynamic pathways in multidimensional landscapes“. Scientific Kick-Off and Summer School, Potsdam, Germany

Ultrafast Dynamics of Amplitude and Phase Excitations in Charge- and Spin-Ordered Materials

Chair for Ultrafast Phenomena and Photonics at the University of Konstanz, Germany

New Light on Charge Density Waves: Electron-Phonon Coupling in the CDW material TbTe₃ seen by Femtosecond Time-Resolved ARPES and Resonant Soft X-Ray Diffraction

Chair of Solid State Physics at the Friedrich-Alexander-University Erlangen-Nuremberg, Germany

Ultrafast Electron Dynamics in the Topological Insulator Material Bi₂Se₃

Faculty of Physics at the University Duisburg-Essen

New Light on Charge Density Waves: Electron-Phonon Coupling in the CDW material TbTe₃ seen by Femtosecond Time-Resolved ARPES and Resonant Soft X-Ray Diffraction

Dr. Patrick S. Kirchmann
Staff Scientist
Stanford Institute for Materials and Energy Science (SIMES)
SLAC National Accelerator Laboratory & Stanford University
2575 Sand Hill Road
Menlo Park, CA 94025-7015, USA

Menlo Park, March 2017



Cornell University, Ithaca, NY, USA
Time-Resolved Photoemission: Past, Present and Future

2013

8th International Symposium on Ultrafast Surface Dynamics (USD8), Estes Park, CO, USA
Unoccupied Dirac Surface States and Ultrafast Optical Excitation in Bi₂Se₃

SLAC National Accelerator Laboratory, SIMES Seminar, Menlo Park, CA, USA
Femtosecond Time- and Angle-Resolved Photoemission: Current Status and Future Prospects.

Helmholtz Zentrum Berlin, Conference of the Virtual Institute „Dynamic pathways in multidimensional landscapes“ Berlin, Germany
Ultrafast Electron Dynamics in the Topological Insulator Compound Bi₂Se₃.

2014

Ultrafast Phenomena in Cooperative Systems, Ventura, CA, USA
Quantum Materials – A Time Domain Perspective (presented together with Z-X. Shen)

DPG Spring Meeting, Competition for the Gerhard Ertl Young Investigator Award, Dresden, Germany
Unraveling Elementary Electron Scattering Processes Using Ultrafast Photoemission

5th International Conference on Photoinduced Phase Transitions and Cooperative Phenomena (PIPT5), Bled, Slovenia
Towards a Microscopic Picture of the Photo-Induced, Metastable State in TaS₂

2016

Scientific Opportunities for Ultrafast Hard X-rays at High Repetition Rate: An Energy Upgrade of LCLS-II, Menlo Park, USA
Opportunities for PES-based Science at LCLS-II

ALS-CXRO Seminar, Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley CA, USA
Coherent Phonon Lock-In Quantifies Electron-Phonon Coupling in FeSe