



Zhi-Xun Shen

Paul Pigott Professor in Physical Sciences, Professor of Photon Science, of Physics and Senior Fellow at the Precourt Institute for Energy

Applied Physics

 Curriculum Vitae available Online

CONTACT INFORMATION

- **Alternate Contact**

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Bio

BIO

Dr. Shen is the Paul Pigott Professor in Physical Sciences, a senior fellow of the Precourt Institute for Energy, and a member of the faculty advisory board for the Knight-Hennessy Scholars Program at Stanford University. He is a Member of the National Academy of Sciences and a fellow of American Academy of Arts and Sciences. He is an expert on quantum phenomena in materials, and a recipient of E.O. Lawrence Award of the Department of Energy, the Oliver E. Buckley Prize of the American Physical Society, the Kamerlingh Onnes International Prize on Superconductivity, and the Einstein Professorship Award of the Chinese Academy of Sciences. He served as the Chief Scientist of SLAC National Accelerator Laboratory, the Director of the Geballe Laboratory for Advanced Materials, and the Director of the Stanford Institute for Materials and Energy Sciences. He mentored about 80 graduate students and postdoctoral fellows, and co-founded three companies.

ACADEMIC APPOINTMENTS

- Professor, Applied Physics
- Professor, Photon Science Directorate
- Professor, Physics
- Principal Investigator, Stanford Institute for Materials and Energy Sciences

ADMINISTRATIVE APPOINTMENTS

- Science and Technology Advisor, SLAC, (2013- present)
- Chief Scientist, SLAC, (2010-2013)
- Director, Stanford Institute for Materials and Energy Sciences, (2006-2011)
- Director, Geballe Laboratory For Advanced Materials, (2005-2008)

HONORS AND AWARDS

- Fellow, American Academy of Arts and Sciences (2017)
- Foreign Member, Chinese Academy of Sciences (2017)
- Member, National Academy of Sciences (2015)
- Honorary Professorship, Nanjing University (2014)

- Investigator, Emerging Phenomena in Quantum System Initiative, Gordon and Betty Moore Foundation (2014)
- Einstein Professorship, Chinese Academy of Sciences (2013)
- Oliver Buckley Condensed Matter Physics Prize, American Physical Society (2011)
- Ernest Orlando Lawrence Award, US Department of Energy (2010)
- Paul Pigott Professor in Physical Science, Stanford University (2006)
- Fellow, American Physical Society (2002)
- The Takeda Techno-Entrepreneurship Award, The Takeda Foundation, Japan (2002)
- H. Kamerlingh Onnes Prize, Conference on Materials and Mechanism of superconductivity (2000)
- Centennial Cerebration Lecture, American Physical Society (1999)
- Outstanding Scientific Accomplishment Award, Office of Basic Energy Sciences, Department of Energy (1994)
- Fellow, Alfred P. Sloan Foundation (1993)
- Young Investigator, National Science Foundation (1993)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member of Faculty Advisory Board, Knight-Hennessy Scholars Program, Stanford University (2016 - present)
- Member Advisory Committee, School of Physical Science and Technology, Shanghai Tech (2015 - present)
- Science Advisory Board, Max Planck Institute for Matter and Dynamics, Germany (2015 - present)
- Member of Advisory Board for Major Scientific Facilities, Chinese Academy of Sciences (2015 - 2017)
- Member of Coucil, Materials Science Division, Office of Basic Energy Sciences, Department of Energy (2014 - 2017)
- Chair of Oliver Buckley Prize Committee, American Physical Society (2013 - 2013)
- Member of the Board, PrimeNano Inc. (2011 - present)
- Member, Scientific Advisory Committee,, National Synchrotron Radiation Research Center, Taiwan. (2008 - 2011)
- Member of the Board, Astronergy Corp (2007 - 2015)
- Member of Visiting Committee,, Physics Department, Fudan University, China (2007 - 2007)
- Member of Executive Committee,, Division of Condensed Matter Physics, American Physical Society (2002 - 2004)
- Member of Visiting Committee,, Physics Department, Tsinghua University, China (2001 - 2010)
- Chair, Scientific Advisory Committee, Advanced Light Source, Lawrence Berkeley National Laboratory (1998 - 2000)
- Member of Basic Energy Science Advisory Committee, Department of Energy (1997 - 2002)
- Member of Executive Committee,, Forum on International Physics, American Physical Society (1996 - 1999)
- Scientific Spokesperson, NEDO International Cooperative Research Program on Metal Oxides; MITI, Japan (1994 - 1997)

PROFESSIONAL EDUCATION

- Ph.D., Stanford University , Applied Physics (1989)
- MS, Rutgers University , Physics (1985)
- BS, Fudan University , Physics (1983)

PATENTS

- Michael Kelly, K.J. Lai and Zhi-Xun Shen. "United States Patent US Patent # 8,266,718 Modulated Microwave Microscopy and Probes Used There with", Stanford
- Jared William Schwede, Nickolas A. Melosh and Zhi-Xun Shen. "United States Patent 8853531 Photoemission Enhanced Thermionic Emission for Solar Energy Harvesting", Stanford University, Oct 7, 2014
- Wanli Yang, Jason D. Fabbri, Zahid Hussain, Nicholas A. Melosh and Zhi-Xun Shen. "United States Patent US Patent #8,154,185 Diamondoid Monolayers as Electron Emitters", Stanford University and LBNL, Apr 20, 2012

- Michael Kelly, Zhengyu Wang, and Zhi-Xun Shen. "United States Patent US Patent #7,190,175 Orthogonal Microwave Imaging Probe", Stanford University, Mar 13, 2007
- Michael Kelly, Zhengyu Wang, and Zhi-Xun Shen. "United States Patent US Patent #6,825,645 Non-resonant Microwave Imaging Probe", Stanford University, Nov 30, 2004

LINKS

- My Lab Site: <http://arpes.stanford.edu>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Dr. Shen's main research interest lies in the area of condensed matter and materials physics, as well as the applications of materials and devices. He develops photon based innovative instrumentation and advanced experimental techniques, ranging from angle-resolved photoemission to microwave imaging, soft x-ray scattering and time domain spectroscopy and scattering. He has created a body of literature that advanced our understanding of quantum materials, including superconductors, semiconductors, novel magnets, topological insulators, novel carbon and electron emitters. He is best known for his discoveries of the momentum structure of anisotropic d-wave pairing gap and anomalous normal state pseudogap in high temperature superconductors. He has further leveraged the advanced characterization tool to make better materials through thin film and interface engineering.

Teaching

COURSES

2018-19

- Electrons and Photons: APPPHYS 201, PHOTON 201 (Spr)

2017-18

- Condensed Matter Seminar: APPPHYS 470 (Win)
- Electrons and Photons: APPPHYS 201, PHOTON 201 (Spr)
- Research Activities at Stanford: PHYSICS 290 (Aut)

2016-17

- Condensed Matter Seminar: APPPHYS 470 (Win)
- Research Activities at Stanford: PHYSICS 290 (Aut)
- Solid State Physics Problems in Energy Technology: APPPHYS 219 (Spr)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Benjamin Nosarzewski

Postdoctoral Faculty Sponsor

Mark Barber, Zhuoyu Chen, Nicolas Gauthier, Matteo Rossi, Jinpeng Wu, Yong Zhong

Doctoral Dissertation Advisor (AC)

Sudi Chen, Alexandre Gauthier, Tao Jia, HAIYU LU, Jay Qu, Slavko Rebec

Doctoral Dissertation Co-Advisor (AC)

Yuan Chen

Postdoctoral Research Mentor

Mark Barber, Yu He, Yong Zhong

Doctoral (Program)

Sarah Harvey, Logan Su, Jiahui Wang, Colin Yule

Publications

PUBLICATIONS

- **Manipulating Topological Domain Boundaries in the Single-Layer Quantum Spin Hall Insulator 1T'-WSe₂.** *Nano letters*
Pedramrazi, Z., Herbig, C., Pulkin, A., Tang, S., Phillips, M., Wong, D., Ryu, H., Pizzochero, M., Chen, Y., Wang, F., Mele, E. J., Shen, Z., Mo, et al
2019
- **Nanodiamond Integration with Photonic Devices** *LASER & PHOTONICS REVIEWS*
Rodulaski, M., Zhang, J., Tzeng, Y., Lagoudakis, K. G., Ishiwata, H., Dory, C., Fischer, K. A., Kelaita, Y. A., Sun, S., Maurer, P. C., Alassaad, K., Ferro, G., Shen, et al
2019
- **Visualization of an axion insulating state at the transition between 2 chiral quantum anomalous Hall states.** *Proceedings of the National Academy of Sciences of the United States of America*
Allen, M., Cui, Y., Yue Ma, E., Mogi, M., Kawamura, M., Fulga, I. C., Goldhaber-Gordon, D., Tokura, Y., Shen, Z.
2019
- **Scanning microwave imaging of optically patterned Ge₂Sb₂Te₅** *APPLIED PHYSICS LETTERS*
Johnston, S. R., Ng, E., Fong, S. W., Mok, W. Y., Park, J., Zalden, P., Sakdinawat, A., Wong, H., Mabuchi, H., Shen, Z.
2019; 114 (9)
- **Fermi surface reconstruction in electron-doped cuprates without antiferromagnetic long-range order.** *Proceedings of the National Academy of Sciences of the United States of America*
He, J., Rotundu, C. R., Scheurer, M. S., He, Y., Hashimoto, M., Xu, K., Wang, Y., Huang, E. W., Jia, T., Chen, S., Moritz, B., Lu, D., Lee, et al
2019; 116 (9): 3449–53
- **Recording interfacial currents on the subnanometer length and femtosecond time scale by terahertz emission.** *Science advances*
Ma, E. Y., Guzelturk, B., Li, G., Cao, L., Shen, Z., Lindenberg, A. M., Heinz, T. F.
2019; 5 (2): eaau0073
- **Imaging quantum spin Hall edges in monolayer WTe₂.** *Science advances*
Shi, Y., Kahn, J., Niu, B., Fei, Z., Sun, B., Cai, X., Francisco, B. A., Wu, D., Shen, Z., Xu, X., Cobden, D. H., Cui, Y.
2019; 5 (2): eaat8799
- **Epitaxial growth of TiSe₂/TiO₂ heterostructure** *2D MATERIALS*
Jia, T., Rebec, S. N., Tang, S., Xu, K., Sohail, H. M., Hashimoto, M., Lu, D., Moore, R. G., Shen, Z.
2019; 6 (1)
- **Monitoring Charge Separation Dynamics Using THz Emission Spectroscopy**
Guzelturk, B., Ma, E., Li, G., Cao, L., Shen, Z., Heinz, T., Lindenberg, A., IEEE
IEEE.2019
- **Frequency Tunable Single-Photon Emission From a Single Atomic Defect in a Solid**
Sun, S., Zhang, J., Fischer, K. A., Burek, M. J., Dory, C., Lagoudakis, K. G., Tzeng, Y., Radulaski, M., Kelaita, Y., Safavi-Naeini, A., Shen, Z., Melosh, N. A., Chu, et al
IEEE.2019
- **Dichotomy of the photo-induced 2-dimensional electron gas on SrTiO₃ surface terminations.** *Proceedings of the National Academy of Sciences of the United States of America*
Rebec, S. N., Jia, T., Sohail, H. M., Hashimoto, M., Lu, D., Shen, Z. X., Moore, R. G.
2019
- **Observation of topologically protected states at crystalline phase boundaries in single-layer WSe₂** *NATURE COMMUNICATIONS*
Ugeda, M. M., Pulkin, A., Tang, S., Ryu, H., Wu, Q., Zhang, Y., Wong, D., Pedramrazi, Z., Martin-Recio, A., Chen, Y., Wang, F., Shen, Z., Mo, et al

2018; 9: 3401

- **Cavity-Enhanced Raman Emission from a Single Color Center in a Solid.** *Physical review letters*
Sun, S., Zhang, J. L., Fischer, K. A., Burek, M. J., Dory, C., Lagoudakis, K. G., Tzeng, Y., Radulaski, M., Kelaita, Y., Safavi-Naeini, A., Shen, Z., Melosh, N. A., Chu, et al
2018; 121 (8): 083601
- **'Molecular anvils' for sterically controlled mechanochemistry under hydrostatic pressure**
Yan, H., Schreiner, P., Mao, W., Shen, Z., Melosh, N.
AMER CHEMICAL SOC.2018
- **Experimental measurement of the diamond nucleation landscape reveals classical and nonclassical features.** *Proceedings of the National Academy of Sciences of the United States of America*
Gebbie, M. A., Ishiwata, H., McQuade, P. J., Petrak, V., Taylor, A., Freiwald, C., Dahl, J. E., Carlson, R. M., Fokin, A. A., Schreiner, P. R., Shen, Z., Nesladek, M., Melosh, et al
2018
- **Anomalous Hall effect in ZrTe₅** *NATURE PHYSICS*
Liang, T., Lin, J., Gibson, Q., Kushwaha, S., Liu, M., Wang, W., Xiong, H., Sobota, J. A., Hashimoto, M., Kirchmann, P. S., Shen, Z., Cava, R. J., Ong, et al
2018; 14 (5): 451-+
- **Optically coupled methods for microwave impedance microscopy** *REVIEW OF SCIENTIFIC INSTRUMENTS*
Johnston, S. R., Ma, E., Shen, Z.
2018; 89 (4): 043703
- **Sterically controlled mechanochemistry under hydrostatic pressure** *NATURE*
Yan, H., Yang, F., Pan, D., Lin, Y., Hohman, J., Solis-Ibarra, D., Li, F., Dahl, J. P., Carlson, R. K., Tkachenko, B. A., Fokin, A. A., Schreiner, P. R., Galli, et al
2018; 554 (7693): 505-+
- **Monochromatic Photocathodes from Graphene-Stabilized Diamondoids** *NANO LETTERS*
Yan, H., Narasimha, K. T., Denlinger, J., Li, F., Mo, S., Hohman, J., Dahl, J. P., Carlson, R. K., Tkachenko, B. A., Fokin, A. A., Schreiner, P. R., Hussain, Z., Shen, et al
2018; 18 (2): 1099-1103
- **Strongly Cavity-Enhanced Spontaneous Emission from Silicon-Vacancy Centers in Diamond** *NANO LETTERS*
Zhang, J., Sun, S., Burek, M. J., Dory, C., Tzeng, Y., Fischer, K. A., Kelaita, Y., Lardakis, K. G., Radulaski, M., Shen, Z., Melosh, N. A., Chu, S., Loncar, et al
2018; 18 (2): 1360-65
- **Electronic structure of monolayer 1T'-MoTe₂ grown by molecular beam epitaxy** *APL MATERIALS*
Tang, S., Zhang, C., Jia, C., Ryu, H., Hwang, C., Hashimoto, M., Lu, D., Liu, Z., Devereaux, T. P., Shen, Z., Mo, S.
2018; 6 (2)
- **Persistent Charge-Density-Wave Order in Single-Layer TaSe₂** *NANO LETTERS*
Ryu, H., Chen, Y., Kim, H., Tsai, H., Tang, S., Jiang, J., Liou, F., Kahn, S., Jia, C., Omrani, A. A., Shim, J., Hussain, Z., Shen, et al
2018; 18 (2): 689-94
- **Modification of Transition-Metal Redox by Interstitial Water in Hexacyanometalate Electrodes for Sodium-Ion Batteries** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Wu, J., Song, J., Dai, K., Zhuo, Z., Wray, L., Liu, G., Shen, Z., Zeng, R., Lu, Y., Yang, W.
2017; 139 (50): 18358-64
- **Taking control of spin currents** *NATURE*
Shen, Z., Sobota, J.
2017; 549 (7673): 464-65
- **ARPES study of the epitaxially grown topological crystalline insulator SnTe(111)** *JOURNAL OF ELECTRON SPECTROSCOPY AND RELATED PHENOMENA*
Zhang, Y., Liu, Z., Zhou, B., Kim, Y., Yang, L., Ryu, H., Hwang, C., Chen, Y., Hussain, Z., Shen, Z., Mo, S.
2017; 219: 35-40
- **Three-dimensional nature of the band structure of ZrTe₅ measured by high-momentum-resolution photoemission spectroscopy** *PHYSICAL REVIEW B*

- Xiong, H., Sobota, J. A., Yang, S., Soifer, H., Gauthier, A., Lu, M., Lv, Y., Yao, S., Lu, D., Hashimoto, M., Kirchmann, P. S., Chen, Y., Shen, et al
2017; 95 (19)
- **Nonequilibrium lattice-driven dynamics of stripes in nickelates using time-resolved x-ray scattering** *PHYSICAL REVIEW B*
Lee, W. S., Kung, Y. F., Moritz, B., Coslovich, G., Kaindl, R. A., Chuang, Y. D., Moore, R. G., Lu, D. H., Kirchmann, P. S., ROBINSON, J. S., Miniti, M. P., Dakovski, G., Schlotter, et al
2017; 95 (12)
 - **Hybrid metal-organic chalcogenide nanowires with electrically conductive inorganic core through diamondoid-directed assembly.** *Nature materials*
Yan, H., Hohman, J. N., Li, F. H., Jia, C., Solis-Ibarra, D., Wu, B., Dahl, J. E., Carlson, R. M., Tkachenko, B. A., Fokin, A. A., Schreiner, P. R., Vailionis, A., Kim, et al
2017; 16 (3): 349-355
 - **Vertical-Substrate MPCVD Epitaxial Nanodiamond Growth.** *Nano letters*
Tzeng, Y., Zhang, J. L., Lu, H., Ishiwata, H., Dahl, J., Carlson, R. M., Yan, H., Schreiner, P. R., Vuckovic, J., Shen, Z., Melosh, N., Chu, S.
2017
 - **Ubiquitous strong electron-phonon coupling at the interface of FeSe/SrTiO₃** *NATURE COMMUNICATIONS*
Zhang, C., Liu, Z., Chen, Z., Xie, Y., He, R., Tang, S., He, J., Li, W., Jia, T., Rebec, S. N., Ma, E. Y., Yan, H., Hashimoto, et al
2017; 8
 - **Back-gated graphene anode for more efficient thermionic energy converters** *NANO ENERGY*
Yuan, H., Riley, D. C., Shen, Z., Pianetta, P. A., Melosh, N. A., Howe, R. T.
2017; 32: 67-72
 - **Modular soft x-ray spectrometer for applications in energy sciences and quantum materials.** *The Review of scientific instruments*
Chuang, Y., Shao, Y., Cruz, A., Hanzel, K., Brown, A., Frano, A., Qiao, R., Smith, B., Domning, E., Huang, S., Wray, L. A., Lee, W., Shen, et al
2017; 88 (1): 013110-?
 - **HfSe₂ and ZrSe₂: Two-dimensional semiconductors with native high-# oxides.** *Science advances*
Mleccko, M. J., Zhang, C., Lee, H. R., Kuo, H. H., Magyari-Köpe, B., Moore, R. G., Shen, Z. X., Fisher, I. R., Nishi, Y., Pop, E.
2017; 3 (8): e1700481
 - **Complete Coherent Control of Silicon-Vacancies in Diamond Nanopillars Containing Single Defect Centers**
Zhang, J., Lagoudakis, K. G., Tzeng, Y., Dory, C., Radulaski, M., Kelaita, Y., Fischer, K. A., Shen, Z., Melosh, N. A., Chu, S., Vuckovic, J., IEEE
IEEE.2017
 - **Distinct Electronic Structure for the Extreme Magnetoresistance in YSb** *PHYSICAL REVIEW LETTERS*
He, J., Zhang, C., Ghimire, N. J., Liang, T., Jia, C., Jiang, J., Tang, S., Chen, S., He, Y., Mo, S., Hwang, C. C., Hashimoto, M., Lu, et al
2016; 117 (26)
 - **Ideal charge-density-wave order in the high-field state of superconducting YBCO** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Jang, H., Lee, W., Nojiri, H., Matsuzawa, S., Yasumura, H., Nie, L., Maharaj, A. V., Gerber, S., Liu, Y., Mehta, A., Bonn, D. A., Liang, R., Hardy, et al
2016; 113 (51): 14645-14650
 - **Selenium capped monolayer NbSe₂ for two-dimensional superconductivity studies** *PHYSICA STATUS SOLIDI B-BASIC SOLID STATE PHYSICS*
Onishi, S., Ugeda, M. M., Zhang, Y., Chen, Y., Ojeda-Aristizabal, C., Ryu, H., Mo, S., Hussain, Z., Shen, Z., Crommie, M. F., Zettl, A.
2016; 253 (12): 2396-2399
 - **Unconventional Correlation between Quantum Hall Transport Quantization and Bulk State Filling in Gated Graphene Devices** *PHYSICAL REVIEW LETTERS*
Cui, Y., Wen, B., Ma, E. Y., Diankov, G., Han, Z., Amet, F., Taniguchi, T., Watanabe, K., Goldhaber-Gordon, D., Dean, C. R., Shen, Z.
2016; 117 (18)
 - **Spin-polarized surface resonances accompanying topological surface state formation** *NATURE COMMUNICATIONS*
Jozwiak, C., Sobota, J. A., Gotlieb, K., Kemper, A. F., Rotundu, C. R., Birgeneau, R. J., Hussain, Z., Lee, D., Shen, Z., Lanzara, A.
2016; 7
 - **Distinctive orbital anisotropy observed in the nematic state of a FeSe thin film** *PHYSICAL REVIEW B*
Zhang, Y., Yi, M., Liu, Z., Li, W., Lee, J. J., Moore, R. G., Hashimoto, M., Nakajima, M., Eisaki, H., Mo, S., Hussain, Z., Devereaux, T. P., Shen, et al

2016; 94 (11)

- **Superconducting Gap Anisotropy in Monolayer FeSe Thin Film** *PHYSICAL REVIEW LETTERS*
Zhang, Y., Lee, J. J., Moore, R. G., Li, W., Yi, M., Hashimoto, M., Lu, D. H., Devereaux, T. P., Lee, D., Shen, Z.
2016; 117 (11)
- **Quantitative analysis of effective height of probes in microwave impedance microscopy** *REVIEW OF SCIENTIFIC INSTRUMENTS*
Wei, Z., Ma, E. Y., Cui, Y., Johnston, S., Yang, Y., Agarwal, K., Kelly, M. A., Shen, Z., Chen, X.
2016; 87 (9)
- **Evolution of the Valley Position in Bulk Transition-Metal Chalcogenides and Their Monolayer Limit.** *Nano letters*
Yuan, H., Liu, Z., Xu, G., Zhou, B., Wu, S., Dumcenco, D., Yan, K., Zhang, Y., Mo, S., Dudin, P., Kandyba, V., Yablonskikh, M., Barinov, et al
2016; 16 (8): 4738-4745
- **Picosecond Electric-Field-Induced Threshold Switching in Phase-Change Materials.** *Physical review letters*
Zalden, P., Shu, M. J., Chen, F., Wu, X., Zhu, Y., Wen, H., Johnston, S., Shen, Z., Landreman, P., Brongersma, M., Fong, S. W., Wong, H. P., Sher, et al
2016; 117 (6): 067601-?
- **Quartz tuning fork based microwave impedance microscopy** *REVIEW OF SCIENTIFIC INSTRUMENTS*
Cui, Y., Ma, E. Y., Shen, Z.
2016; 87 (6)
- **Quantitative Theory for Probe-Sample Interaction With Inhomogeneous Perturbation in Near-Field Scanning Microwave Microscopy** *IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES*
Wei, Z., Cui, Y., Ma, E. Y., Johnston, S., Yang, Y., Chen, R., Kelly, M., Shen, Z., Chen, X.
2016; 64 (5): 1402-1408
- **Electronic Structure, Surface Doping, and Optical Response in Epitaxial WSe₂ Thin Films.** *Nano letters*
Zhang, Y., Ugeda, M. M., Jin, C., Shi, S., Bradley, A. J., Martín-Recio, A., Ryu, H., Kim, J., Tang, S., Kim, Y., Zhou, B., Hwang, C., Chen, et al
2016; 16 (4): 2485-2491
- **Ultralow effective work function surfaces using diamondoid monolayers.** *Nature nanotechnology*
Narasimha, K. T., Ge, C., Fabbri, J. D., Clay, W., Tkachenko, B. A., Fokin, A. A., Schreiner, P. R., Dahl, J. E., Carlson, R. M., Shen, Z. X., Melosh, N. A.
2016; 11 (3): 267-272
- **Ultrafast resonant soft x-ray diffraction dynamics of the charge density wave in TbTe₃** *PHYSICAL REVIEW B*
Moore, R. G., Lee, W. S., Kirchman, P. S., Chuang, Y. D., Kemper, A. F., Trigo, M., Patthey, L., Lu, D. H., Krupin, O., Yi, M., Reis, D. A., Doering, D., Denes, et al
2016; 93 (2)
- **Raman and fluorescence characteristics of resonant inelastic X-ray scattering from doped superconducting cuprates** *SCIENTIFIC REPORTS*
Huang, H. Y., Jia, C. J., Chen, Z. Y., Wohlfeld, K., Moritz, B., Devereaux, T. P., Wu, W. B., Okamoto, J., Lee, W. S., Hashimoto, M., He, Y., Shen, Z. X., Yoshida, et al
2016; 6
- **Invited Article: High resolution angle resolved photoemission with tabletop 11 eV laser.** *Review of scientific instruments*
He, Y., Vishik, I. M., Yi, M., Yang, S., Liu, Z., Lee, J. J., Chen, S., Rebec, S. N., Leuenberger, D., Zong, A., Jefferson, C. M., Moore, R. G., Kirchmann, et al
2016; 87 (1): 011301-?
- **Hybrid Group IV Nanophotonic Structures Incorporating Diamond Silicon-Vacancy Color Centers.** *Nano letters*
Zhang, J. L., Ishiwata, H., Babinec, T. M., Radulaski, M., Müller, K., Lagoudakis, K. G., Dory, C., Dahl, J., Edgington, R., Soulière, V., Ferro, G., Fokin, A. A., Schreiner, et al
2016; 16 (1): 212-17
- **Origin of the low critical observing temperature of the quantum anomalous Hall effect in V-doped (Bi, Sb)2Te₃ film.** *Scientific reports*
Li, W., Claassen, M., Chang, C., Moritz, B., Jia, T., Zhang, C., Rebec, S., Lee, J. J., Hashimoto, M., Lu, D., Moore, R. G., Moodera, J. S., Devereaux, et al
2016; 6: 32732-?
- **Persistent order due to transiently enhanced nesting in an electronically excited charge density wave.** *Nature communications*
Rettig, L., Cortés, R., Chu, J., Fisher, I. R., Schmitt, F., Moore, R. G., Shen, Z., Kirchmann, P. S., Wolf, M., Bovensiepen, U.
2016; 7: 10459-?

- **Characterization of collective ground states in single-layer NbSe₂** *NATURE PHYSICS*
Ugeda, M. M., Bradley, A. J., Zhang, Y., Onishi, S., Chen, Y., Ruan, W., Ojeda-Aristizabal, C., Ryu, H., Edmonds, M. T., Tsai, H., Riss, A., Mo, S., Lee, et al
2016; 12 (1): 92-U126
- **Hybrid Group IV Nanophotonic Structures Incorporating Diamond Silicon-Vacancy Color Centers** *NANO LETTERS*
Zhang, J. L., Ishiwata, H., Babinec, T. M., Radulaski, M., Mueller, K., Lagoudakis, K. G., Dory, C., Dahl, J., Edgington, R., Souliere, V., Ferro, G., Fokin, A. A., Schreiner, et al
2016; 16 (1): 212-217
- **Direct Imaging of Dynamic Glassy Behavior in a Strained Manganite Film** *PHYSICAL REVIEW LETTERS*
Kundhikanjana, W., Sheng, Z., Yang, Y., Lai, K., Ma, E. Y., Cui, Y., Kelly, M. A., Nakamura, M., Kawasaki, M., Tokura, Y., Tang, Q., Zhang, K., Li, et al
2015; 115 (26)
- **Experimental observation of incoherent-coherent crossover and orbital-dependent band renormalization in iron chalcogenide superconductors** *PHYSICAL REVIEW B*
Liu, Z. K., Yi, M., Zhang, Y., Hu, J., Yu, R., Zhu, J., He, R., Chen, Y. L., Hashimoto, M., Moore, R. G., Mo, S., Hussain, Z., Si, et al
2015; 92 (23)
- **Bandwidth and Electron Correlation-Tuned Superconductivity in Rb_{0.8}Fe₂(Se_{1-z}Sz)₂** *PHYSICAL REVIEW LETTERS*
Yi, M., Wang, M., Kemper, A. F., Mo, S., Hussain, Z., Bourret-Courchesne, E., Lanzara, A., Hashimoto, M., Lu, D. H., Shen, Z., Birgeneau, R. J.
2015; 115 (25)
- **Three-dimensional charge density wave order in YBa₂Cu₃O_{6.67} at high magnetic fields** *SCIENCE*
Gerber, S., Jang, H., Nojiri, H., Matsuzawa, S., Yasumura, H., Bonn, D. A., Liang, R., Hardy, W. N., Islam, Z., Mehta, A., Song, S., Sikorski, M., Stefanescu, et al
2015; 350 (6263): 949-952
- **Mobile metallic domain walls in an all-in-all-out magnetic insulator** *SCIENCE*
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