Stanford



Zhi-Xun Shen

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

CONTACT INFORMATION

- **Alternate Contact**

  Marta Mary Vitale - Administrative Associate

  Email msoto2@slac.stanford.edu

  Tel (650) 725-0440

Bio

BIO

Dr. Shen is the Paul Pigott Professor in Physical Sciences, a professor of Physics and Applied Physics Departments, a senior fellow of the Precourt Institute for Energy, and a member of the faculty advisory board for the Knight-Hennessy Scholars Program and a member of the steering committee of the Stanford Science Fellow 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, and the Kamerlingh Onnes International Prize on Superconductivity. 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.

ACADEMIC APPOINTMENTS

- Professor, Applied Physics
- Professor, Physics
- Senior Fellow, Precourt Institute for Energy
- Principal Investigator, Stanford Institute for Materials and Energy Sciences

ADMINISTRATIVE APPOINTMENTS

- Science and Technology Advisor, SLAC, (2013-2019)
- 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, Royal Society (2026)
- Tage Erlander Guest Professorship award, Swedish Research Council and KTH Royal Institute of Technology, Sweden (2020)
- Bershadsky Distinguished Visiting Scholar and Loeb Lecturer, Physics Department, Harvard University (2019)

- William and Flora Hewlett Foundation Fellow, Radcliffe Institute for Advanced Study, Harvard University (2019)
- Fellow, American Academy of Arts and Sciences (2017)
- Member, National Academy of Sciences (2015)
- Investigator, Emerging Phenomena in Quantum System Initiative, Gordon and Betty Moore Foundation (2014)
- Oliver Buckley Condensed Matter Physics Prize, American Physical Society (2011)
- Ernest Olando Lawrence Award, US Department of Energy (2010)
- Paul Pigott Professor in Physical Science, Stanford University (2006)
- Fellow, American Physical Society (2002)
- H. Kamerlingh Onnes Prize, International 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)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member and Team Lead, DOE BESAC subcommittee on International Bench Marking Study (2020 - 2021)
- Member, International Review committee, Physics Department, the University of Tokyo (2020 - 2020)
- Member, NSF SUPER Review Panel (2017 - 2017)
- Member of Faculty Advisory Board, Knight-Hennessy Scholars Program, Stanford University (2016 - present)
- Member and Chair (since 2020), Science Advisory Board, Max Planck Institute for Matter and Dynamics, Germany (2015 - 2024)
- Member of Advisory Board for Major Scientific Facilities, Chinese Academy of Sciences (2015 - 2017)
- Member, External Review Committee, School of Physical Science and Technology, Shanghai Tech (2015 - 2015)
- 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 Unversity , 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

2026-27

- Electrons and Photons: APPPHYS 201 (Spr)
- Electrons in Low Dimensional and Narrow Band Systems: PHYSICS 276 (Win)

2025-26

- Electrons and Photons: APPPHYS 201, PHOTON 201 (Spr)
- Electrons in Low Dimensional and Narrow Band Systems: PHYSICS 276 (Win)

2023-24

- Electrons and Photons: APPPHYS 201, PHOTON 201 (Spr)
- Electrons in Low Dimensional and Narrow Band Systems: PHYSICS 276 (Win)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Yifan Li, Yidi Liu

Postdoctoral Faculty Sponsor

Qinda Guo, Paulina Majchrzak, Heonjoon Park, Bai Yang Wang, Xirui Wang

Doctoral Dissertation Advisor (AC)

Sebastien Abadi, Kutay Akin, Elena Corbae, Erin Fleck, Matthew Hurley, Karen Lei, Bo Liu, Dongyu Liu, Noah Meyer, Siyuan Qiu, Jay Qu, Ruohan Wang, Jin Gene Wong

Doctoral Dissertation Co-Advisor (AC)

Nicole Ticea

Doctoral (Program)

Riley Carpenter, Chaitrali Duse, Cesar Lema, Emma Lickey, Parry Luo, Kiran Mak, Anne Ruperto, Erik Szakiel

Postdoctoral Research Mentor

Yu He

Publications

PUBLICATIONS

- **Perturbative sensing of nanoscale quantum materials with millimeter-wave photonic crystals** *PHYSICAL REVIEW APPLIED*
  Multani, K. K. S., Ji, Z., Jiang, W., Qiu, S., Hayden, A. G., Multani, G., Platt, S. R., Nanni, E. A., Shen, Z., Safavi-Naeini, A. H.
  2026; 26 (3)
- **Electronic Structure of Compressively Strained Bilayer Nickelate Thin Film** *PHYSICAL REVIEW X*
  Wang, B., Abadi, S. N., Liu, Y., Zhang, Y., Zhong, Y., Yu, Y., Goodge, B. H., Zhang, X., Wu, Y., Wang, R., Li, J., Tarn, Y., Ko, et al
  2026; 16 (3)
- **Collective Magnetic Excitations in a Photoexcited Electron-Doped Cuprate Superconductor.** *Physical review letters*
  Jost, D., Li, J., Hales, J., Sobota, J., Merzoni, G., Martinelli, L., Ding, S., Xu, K. J., Schlappa, J., Scherz, A., Carley, R., Van Kuiken, B. E., Asmara, et al
  2026; 137 (9): 096502
- **Hund's coupling governed orbital-selective superconductivity in Ba1-xKxFe2As2** *PHYSICAL REVIEW B*
  Corbae, E., Zhang, R., Li, C., Kihou, K., Lee, C., Hashimoto, M., Devereaux, T., Tjernberg, O., Babaev, E., Lee, D., Grinenko, V., Lu, D., Shen, et al
  2026; 113 (22)
- **Thermal Hall conductivity of electron-doped cuprates: Electrons and phonons** *PHYSICAL REVIEW B*
  Boulanger, M., Chen, L., Oliviero, V., Vignolles, D., Grissonnanche, G., Xu, K., Shen, Z., Proust, C., Baglo, J., Taillefer, L.
  2026; 113 (9)
- **Fermi-liquid transport beyond the upper critical field in superconducting La2PrNi2O7 thin films.** *Nature communications*
  Hsu, Y. T., Liu, Y., Kohama, Y., Kotte, T., Sharma, V., Tarn, Y., Wang, B. Y., Shen, Z. X., Yu, Y., Hwang, H. Y.
  2026
- **Multimode objective lens for momentum microscopy and x-ray photoemission electron microscopy: Experiments.** *The Review of scientific instruments*
  Tkach, O., Fragkos, S., Biswas, D., Liu, J., Fedchenko, O., Lytvynenko, Y., Babenkov, S., Zimmer, D., Nguyen, Q. L., Chernov, S., Kutnyakhov, D., Scholz, M., Wind, et al
  2026; 97 (3)
- **Plasmonic polaron in self-intercalated 1T-TiS₂** *COMMUNICATIONS MATERIALS*
  Choi, B., Choi, W., Tao, Z., Lee, J., Ryu, S., Mun, S., Lee, H., Park, K., Lee, S., Im, H., Zhong, Y., Ryu, H., Kim, et al
  2026; 7 (1)
- **Reducing the Strain Required for Ambient-Pressure Superconductivity in Ruddlesden-Popper Bilayer Nickelates.** *Advanced materials (Deerfield Beach, Fla.)*
  Tarn, Y., Liu, Y., Theuss, F., Li, J., Wang, B. Y., Bhatt, L., Wang, J., Song, J., Thampy, V., Goodge, B. H., Muller, D. A., Shen, Z. X., Yu, et al
  2026: e20724
- **Nonmonotonic Band Flattening near the Magic Angle of Twisted Bilayer MoTe2** *PHYSICAL REVIEW X*
  Deng, Y., Holtzmann, W., Zhu, Z., Zaklama, T., Majchrzak, P., Taniguchi, T., Watanabe, K., Hashimoto, M., Lu, D., Jozwiak, C., Bostwick, A., Rotenberg, E., Fu, et al
  2025; 15 (4)
- **Macroscopic Uniform 2D Moiré Superlattices with Controllable Angles.** *Journal of the American Chemical Society*
  Zaborski, G., Majchrzak, P. E., Lai, S., Johnson, A. C., Li, Q., Saunders, A. P., Zhu, Z., Deng, Y., Lu, D., Hashimoto, M., Shen, Z. X., Liu, F.

2025

- **Terahertz-Induced Tunnel Ionization Drives Coherent Raman-Active Phonon in Bismuth.** *Physical review letters*
  Cheng, B., Kramer, P. L., Trigo, M., Liu, M., Uher, C., Reis, D. A., Shen, Z. X., Sobota, J. A., Hoffmann, M. C.
  2025; 135 (14): 146901
- **Terahertz-Induced Tunnel Ionization Drives Coherent Raman-Active Phonon in Bismuth** *PHYSICAL REVIEW LETTERS*
  Cheng, B., Kramer, P. L., Trigo, M., Liu, M., Uher, C., Reis, D. A., Shen, Z., Sobota, J. A., Hoffmann, M. C.
  2025; 135 (14)
- **Unusual Ferromagnetic Band Evolution and High Curie Temperature in Monolayer 1T-CrTe2 on Bilayer Graphene.** *Small (Weinheim an der Bergstrasse, Germany)*
  Park, K., Lee, J. E., Kim, D., Zhong, Y., Farhang, C., Lee, H., Im, H., Choi, W., Lee, S., Mun, S., Kim, K., Choi, J. W., Ryu, et al
  2025: e06671
- **Surface preparation method for investigating the three-dimensional electronic structure of perovskite nickelates** *PHYSICAL REVIEW B*
  Zhong, Y., Lee, K., Bhatta, R., Zhang, Y., Lee, Y., Gonzalez, M., Li, J., Wang, R., Hashimoto, M., Lu, D., Mo, S., Jia, C., Hwang, et al
  2025; 112 (3)
- **Observation of two cascading screening processes in an iron-based superconductor** *COMMUNICATIONS MATERIALS*
  Chang, M., Backes, S., Lu, D., Gauthier, N., Hashimoto, M., Chen, G., Wen, H., Mo, S., Shen, Z., Valenti, R., Pfau, H.
  2025; 6 (1)
- **Reconstructing the Wave Function of Magnetic Topological Insulators MnBi2Te4 and MnBi4Te7 Using Spin-Resolved Photoemission** *PHYSICAL REVIEW X*
  Han, X., Qu, J., Tan, H., Tao, Z., Meyer, N. M., Kirchmann, P. S., Guo, Y., Yan, B., Shen, Z., Sobota, J. A.
  2025; 15 (3)
- **Reexamining circular dichroism in photoemission from a topological insulator** *PHYSICAL REVIEW RESEARCH*
  Sidilkover, I., Yen, Y., D'Souza, S., Schusser, J., Pulkkinen, A., Rotundu, C. R., Hashimoto, M., Liu, D., Shen, Z., Minar, J., Schuler, M., Soifer, H., Sobota, et al
  2025; 7 (3)
- **Orbital inversion and emergent lattice dynamics in infinite layer CaCoO_{<bold>2</bold>}** *NPJ QUANTUM MATERIALS*
  Jost, D., Lomeli, E. G., Kim, W., Been, E. M., Rossi, M., Agrestini, S., Zhou, K., Jia, C., Moritz, B., Shen, Z., Hwang, H. Y., Devereaux, T. P., Lee, et al
  2025; 10 (1)
- **Dichotomous Temperature Response in the Electronic Structure of Epitaxially Grown Altermagnet MnTe.** *Nano letters*
  Lee, J. E., Zhong, Y., Li, Q., Edmonds, M. T., Shen, Z. X., Hwang, C., Mo, S. K.
  2025
- **Doping Dependence of 2-Spinon Excitations in the Doped 1D Cuprate Ba_{2}CuO_{3+δ}.** *Physical review letters*
  Li, J., Jost, D., Tang, T., Wang, R., Zhong, Y., Chen, Z., Garcia-Fernandez, M., Pelliciari, J., Bisogni, V., Moritz, B., Zhou, K., Wang, Y., Devereaux, et al
  2025; 134 (14): 146501
- **Electronic Structure of the Alternating Monolayer-Trilayer Phase of La_{3}Ni_{2}O_{7}.** *Physical review letters*
  Abadi, S., Xu, K. J., Lomeli, E. G., Puphal, P., Isobe, M., Zhong, Y., Fedorov, A. V., Mo, S. K., Hashimoto, M., Lu, D. H., Moritz, B., Keimer, B., Devereaux, et al
  2025; 134 (12): 126001
- **Electronic Structure of the Alternating Monolayer-Trilayer Phase of La3Ni2O7** *PHYSICAL REVIEW LETTERS*
  Abadi, S., Xu, K., Lomeli, E. G., Puphal, P., Isobe, M., Zhong, Y., Fedorov, A., Mo, S., Hashimoto, M., Lu, D., Moritz, B., Keimer, B., Devereaux, et al
  2025; 134 (12)
- **Analysis methodology of coherent oscillations in time- and angle-resolved photoemission spectroscopy.** *The Review of scientific instruments*
  Gauthier, N., Soifer, H., Sobota, J. A., Pfau, H., Sie, E. J., Lindenberg, A. M., Shen, Z. X., Kirchmann, P. S.
  2025; 96 (2)
- **Observation of cupratelike nonlinear terahertz responses in superconducting infinite-layer nickelates via two-dimensional coherent spectroscopy** *PHYSICAL REVIEW B*

Cheng, B., Cheng, D., Lee, K., Mootz, M., Huang, C., Luo, L., Chen, Z., Lee, Y., Wang, B., Perakis, I. E., Shen, Z., Hwang, H. Y., Wang, et al
2025; 111 (1)

- **Floquet-Bloch manipulation of the Dirac gap in a topological antiferromagnet** *NATURE PHYSICS*
  Bielinski, N., Chari, R., May-Mann, J., Kim, S., Zwettler, J., Deng, Y., Aishwarya, A., Roychowdhury, S., Shekhar, C., Hashimoto, M., Lu, D., Yan, J., Felser, et al
  2025
- **Pseudogap in electron-doped cuprates: Strong correlation leading to band splitting.** *Proceedings of the National Academy of Sciences of the United States of America*
  Horio, M., Sakai, S., Suzuki, H., Nonaka, Y., Hashimoto, M., Lu, D., Shen, Z., Ohgi, T., Konno, T., Adachi, T., Koike, Y., Imada, M., Fujimori, et al
  2025; 122 (1): e2406624122
- **Colossal magnetoresistance from spin-polarized polarons in an Ising system.** *Proceedings of the National Academy of Sciences of the United States of America*
  Li, Y. F., Been, E. M., Balguri, S., Jia, C. J., Mahendru, M. B., Wang, Z. C., Cui, Y., Chen, S. D., Hashimoto, M., Lu, D. H., Moritz, B., Zaanen, J., Tafti, et al
  2024; 121 (50): e2409846121
- **Local probe of bulk and edge states in a fractional Chern insulator.** *Nature*
  Ji, Z., Park, H., Barber, M. E., Hu, C., Watanabe, K., Taniguchi, T., Chu, J. H., Xu, X., Shen, Z. X.
  2024; 635 (8039): 578-583
- **Planar Thermal Hall Effect from Phonons in Cuprates** *PHYSICAL REVIEW X*
  Chen, L., Le Roux, L., Grissonnanche, G., Boulanger, M., Theriault, S., Liang, R., Bonn, D. A., Hardy, W. N., Pyon, S., Takayama, T., Takagi, H., Xu, K., Shen, et al
  2024; 14 (4)
- **Screening of Polar Electron-Phonon Interactions near the Surface of the Rashba Semiconductor BiTeCl** *PHYSICAL REVIEW LETTERS*
  Qu, J., Cuddy, E. F., Han, X., Liu, J., Li, H., Zeng, Y., Moritz, B., Devereaux, T. P., Kirchmann, P. S., Shen, Z., Sobota, J. A.
  2024; 133 (10): 106401
- **Anomalous normal-state gap in an electron-doped cuprate.** *Science (New York, N.Y.)*
  Xu, K. J., He, J., Chen, S. D., He, Y., Abadi, S. N., Rotundu, C. R., Lee, Y. S., Lu, D. H., Guo, Q., Tjernberg, O., Devereaux, T. P., Lee, D. H., Hashimoto, et al
  2024; 385 (6710): 796-800
- **Orbital Ingredients and Persistent Dirac Surface State for the Topological Band Structure in FeTe_{0 . 55} Se_{0 . 45}** *PHYSICAL REVIEW X*
  Li, Y., Chen, S., Garcia-diez, M., Iraola, M. I., Pfau, H., Zhu, Y., Mao, Z., Chen, T., Yi, M., Dai, P., Sobota, J. A., Hashimoto, M., Vergniory, et al
  2024; 14 (2)
- **Band structure of Bi surfaces formed on Bi2Se3 upon exposure to air** *PHYSICAL REVIEW MATERIALS*
  Gauthier, A., Sobota, J. A., Gauthier, N., Rotundu, C. R., Shen, Z., Kirchmann, P. S.
  2024; 8 (5)
- **Low Temperature Dynamic Polaron Liquid in a Manganite Exhibiting Colossal Magnetoresistance.** *Physical review letters*
  Jost, D., Huang, H. Y., Rossi, M., Singh, A., Huang, D. J., Lee, Y., Zheng, H., Mitchell, J. F., Moritz, B., Shen, Z. X., Devereaux, T. P., Lee, W. S.
  2024; 132 (18): 186502
- **Controlling structure and interfacial interaction of monolayer TaSe2 on bilayer graphene.** *Nano convergence*
  Lee, H., Im, H., Choi, B. K., Park, K., Chen, Y., Ruan, W., Zhong, Y., Lee, J. E., Ryu, H., Crommie, M. F., Shen, Z. X., Hwang, C., Mo, et al
  2024; 11 (1): 14
- **Beyond Conventional Charge Density Wave for Strongly Enhanced Two-dimensional Superconductivity in 1H-TaS2Superlattices.** *Advanced materials (Deerfield Beach, Fla.)*
  Li, Z., Lyu, P., Chen, Z., Guan, D., Yu, S., Zhao, J., Huang, P., Zhou, X., Qiu, Z., Fang, H., Hashimoto, M., Lu, D., Song, et al
  2024: e2312341
- **Unraveling sources of emission heterogeneity in Silicon Vacancy color centers with cryo-cathodoluminescence microscopy.** *Proceedings of the National Academy of Sciences of the United States of America*

Angell, D. K., Li, S., Utzat, H., Thurston, M. L., Liu, Y., Dahl, J., Carlson, R., Shen, Z. X., Melosh, N., Sinclair, R., Dionne, J. A.
2024; 121 (14): e2308247121

- **Characterization of Two Fast-Turnaround Dry Dilution Refrigerators for Scanning Probe Microscopy** *JOURNAL OF LOW TEMPERATURE PHYSICS*
  Barber, M. E., Li, Y., Gibson, J., Yu, J., Jiang, Z., Hu, Y., Ji, Z., Nandi, N., Hoke, J. C., Bishop-Van Horn, L., Arias, G. R., Van Harlingen, D. J., Moler, et al
  2024
- **Charge density waves in two-dimensional transition metal dichalcogenides.** *Reports on progress in physics. Physical Society (Great Britain)*
  Hwang, J., Ruan, W., Chen, Y., Tang, S., Crommie, M. F., Shen, Z., Mo, S.
  2024
- **Universal orbital and magnetic structures in infinite-layer nickelates** *PHYSICAL REVIEW B*
  Rossi, M., Lu, H., Goodge, B. H., Choi, J., Osada, M., Lee, Y., Li, D., Wang, B. Y., Jost, D., Agrestini, S., Garcia-Fernandez, M., Shen, Z. X., Zhou, et al
  2024; 109 (2)
- **Evidence for d-wave superconductivity of infinite-layer nickelates from low-energy electrodynamics.** *Nature materials*
  Cheng, B., Cheng, D., Lee, K., Luo, L., Chen, Z., Lee, Y., Wang, B. Y., Mootz, M., Perakis, I. E., Shen, Z. X., Hwang, H. Y., Wang, J.
  2024
- **Probing the edge states of Chern insulators using microwave impedance microscopy** *PHYSICAL REVIEW B*
  Wang, T., Wu, C., Mogi, M., Kawamura, M., Tokura, Y., Shen, Z., You, Y., Allen, M. T.
  2023; 108 (23)
- **Ultrafast Measurements of Mode-Specific Deformation Potentials of Bi₂Te₃ and Bi₂Se₃** *PHYSICAL REVIEW X*
  Huang, Y., Querales-Flores, J. D., Teitelbaum, S. W., Cao, J., Henighan, T., Liu, H., Jiang, M., De la Pena, G., Krapivin, V., Haber, J., Sato, T., Chollet, M., Zhu, et al
  2023; 13 (4)
- **Efficient Photonic Integration of Diamond Color Centers and Thin-Film Lithium Niobate** *ACS PHOTONICS*
  Riedel, D., Lee, H., Herrmann, J. F., Grzesik, J., Ansari, V., Borit, J., Stokowski, H. S., Aghaeimeibodi, S., Lu, H., McQuade, P. J., Melosh, N. A., Shen, Z., Safavi-Naeini, et al
  2023; 10 (12): 4236-4243
- **Bogoliubov quasiparticle on the gossamer Fermi surface in electron-doped cuprates** *NATURE PHYSICS*
  Xu, K., Guo, Q., Hashimoto, M., Li, Z., Chen, S., He, J., He, Y., Li, C., Berntsen, M. H., Rotundu, C. R., Lee, Y. S., Devereaux, T. P., Rydh, et al
  2023; 19 (12): 1834-+
- **Coherent light control of a metastable hidden state.** *Science advances*
  Maklar, J., Sarkar, J., Dong, S., Gerasimenko, Y. A., Pincelli, T., Beaulieu, S., Kirchmann, P. S., Sobota, J. A., Yang, S., Leuenberger, D., Moore, R. G., Shen, Z. X., Wolf, et al
  2023; 9 (47): eadi4661
- **Spin skyrmion gaps as signatures of strong-coupling insulators in magic-angle twisted bilayer graphene.** *Nature communications*
  Yu, J., Foutty, B. A., Kwan, Y. H., Barber, M. E., Watanabe, K., Taniguchi, T., Shen, Z. X., Parameswaran, S. A., Feldman, B. E.
  2023; 14 (1): 6679
- **Angle-resolved pair photoemission theory for correlated electrons** *PHYSICAL REVIEW B*
  Devereaux, T. P., Claassen, M., Huang, X., Zaletel, M., Moore, J. E., Morr, D., Mahmood, F., Abbamonte, P., Shen, Z.
  2023; 108 (6)
- **Development of deflector mode for spin-resolved time-of-flight photoemission spectroscopy.** *The Review of scientific instruments*
  Han, X., Qu, J., Sakamoto, S., Liu, D., Guan, D., Liu, J., Li, H., Rotundu, C. R., Andresen, N., Jozwiak, C., Hussain, Z., Shen, Z. X., Sobota, et al
  2023; 94 (10)
- **Bogoliubov quasiparticle on the gossamer Fermi surface in electron-doped cuprates** *NATURE PHYSICS*
  Xu, K., Guo, Q., Hashimoto, M., Li, Z., Chen, S., He, J., He, Y., Li, C., Berntsen, M. H., Rotundu, C. R., Lee, Y. S., Devereaux, T. P., Rydh, et al
  2023

- **Ingredients of strong interactions in cuprates** *PHYSICA C-SUPERCONDUCTIVITY AND ITS APPLICATIONS*
  Shen, Z., Devereaux, T.
  2023; 613
- **From Stoner to local moment magnetism in atomically thin Cr2Te3.** *Nature communications*
  Zhong, Y., Peng, C., Huang, H., Guan, D., Hwang, J., Hsu, K. H., Hu, Y., Jia, C., Moritz, B., Lu, D., Lee, J. S., Jia, J. F., Devereaux, et al
  2023; 14 (1): 5340
- **Traces of electron-phonon coupling in one-dimensional cuprates.** *Nature communications*
  Tang, T., Moritz, B., Peng, C., Shen, Z. X., Devereaux, T. P.
  2023; 14 (1): 3129
- **Terahertz-Driven Local Dipolar Correlation in a Quantum Paraelectric.** *Physical review letters*
  Cheng, B., Kramer, P. L., Shen, Z. X., Hoffmann, M. C.
  2023; 130 (12): 126902
- **Reversal of spin-polarization near the Fermi level of the Rashba semiconductor BiTeCl** *NPJ QUANTUM MATERIALS*
  Qu, J., Han, X., Sakamoto, S., Jia, C. J., Liu, J., Li, H., Guan, D., Zeng, Y., Schuler, M., Kirchmann, P. S., Moritz, B., Hussain, Z., Devereaux, et al
  2023; 8 (1)
- **Signatures of the exciton gas phase and its condensation in monolayer 1T-ZrTe2.** *Nature communications*
  Song, Y., Jia, C., Xiong, H., Wang, B., Jiang, Z., Huang, K., Hwang, J., Li, Z., Hwang, C., Liu, Z., Shen, D., Sobota, J. A., Kirchmann, et al
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