Stanford



Shanhui Fan

Joseph and Hon Mai Goodman Professor of the School of Engineering, Senior Fellow at the Precourt Institute for Energy and Professor, by courtesy, of Applied Physics

Electrical Engineering

Bio

BIO

Fan's research interests are in fundamental studies of nanophotonic structures, especially photonic crystals and meta-materials, and applications of these structures in energy and information technology applications

ACADEMIC APPOINTMENTS

- Professor, Electrical Engineering
- Senior Fellow, Precourt Institute for Energy
- Member, Bio-X
- Affiliate, Precourt Institute for Energy

ADMINISTRATIVE APPOINTMENTS

- Director, the Edward L. Ginzton Laboratory, Stanford University, (2014-2021)

HONORS AND AWARDS

- Member, American Academy of Arts and Sciences (2026)
- The IEEE Photonics Society William Streifer Scientific Achievement Award, IEEE Photonics Society (2026)
- Fellow, National Academy of Inventors (2025)
- Member, National Academy of Sciences (2025)
- Member, National Academy of Engineering (2024)
- R. W. Wood Prize, Optica (Formerly the Optical Society of America) (2022)
- Simons Investigator in Physics, Simons Foundation (2021)
- Vannevar Bush Faculty Fellowship, Department of Defense (2017)
- Fellow, IEEE (2010)
- Fellow, SPIE (2009)
- Fellow, American Physical Society (2008)
- Adolph Lomb Medal, Optical Society of America (2007)
- Award for Initiatives in Research, National Academy of Sciences (2007)
- Fellow, Optical Society of America (2007)
- David and Lucile Packard Fellowship in Science and Engineering, David and Lucile Packard Foundation (2003)
- Career Award, National Science Foundation (2002)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Scientific Advisory Board, Max Planck Institute for the Science of Light (2022 - present)
- Co-Founder, Skycool Systems (2016 - present)
- Co-Founder, Flexcompute (2016 - present)
- Associate Editor, Applied Physics Letters (2013 - 2019)

PROFESSIONAL EDUCATION

- PhD, MIT , Physics (1997)

LINKS

- https://web.stanford.edu/~shanhui: https://web.stanford.edu/~shanhui
- Shanhui Fan's Google Scholar Page: https://scholar.google.com/citations?user=BECu7wYAAAAJ&hl=en

Teaching

COURSES

2026-27

- Guided Waves: EE 236B (Win)
- Nanophotonics: EE 336, MATSCI 346 (Aut)

2025-26

- Guided Waves: EE 236B (Win)
- Nanophotonics: EE 336, MATSCI 346 (Aut)

2024-25

- Guided Waves: EE 236B (Win)
- Nanophotonics: EE 336, MATSCI 346 (Aut)

2023-24

- Guided Waves: EE 236B (Win)
- Nanophotonics: EE 336, MATSCI 346 (Aut)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Joao Azaro Berenguer, Johan Carlstrom, Yi-Shiou Duh, Melanie Murillo, Luke Qi, Charlotte Wehner

Postdoctoral Faculty Sponsor

Zhe Zhang

Doctoral Dissertation Advisor (AC)

Aivar Abrashuly, Matthew Beutel, Dali Cheng, Der-Han Huang, Ekin Gunes Ozaktas

Master's Program Advisor

Feifei Cheng, Karolyn Cheng, Lingbo Duan, Yue Ma, Luke Qiao, Weiwei Wu, Ning Zhu

Doctoral (Program)

Aivar Abrashuly, Dali Cheng, Robbie Ellis, Sydney Mason, Anny Qiao, Yixuan Shao

Publications

PUBLICATIONS

- **Spin-1 Weyl Points in Isotropic Chiral Metamaterials** *PHYSICAL REVIEW LETTERS*
  Ozaktas, E., Fan, S.
  2026; 137 (10)
- **Spin-1 Weyl Points in Isotropic Chiral Metamaterials.** *Physical review letters*
  Ozaktas, E. G., Fan, S.
  2026; 137 (10): 103801
- **General photonic-crystal slab cavity design for scalable high-power single-mode lasing.** *Light, science & applications*
  Zhou, M., Pan, M., Gautam, C., Seth, S., Rotter, T., Balakrishnan, G., Zhou, W., Fan, S.
  2026; 15 (1)
- **Machine-learning-assisted material and geometry characterization from Casimir force measurement** *PHYSICAL REVIEW APPLIED*
  Iizuka, H., Fan, S.
  2026; 26 (2)
- **Programmable optical filters based on feed-forward photonic meshes.** *Light, science & applications*
  Valdez, C. G., Kroo, A. R., Vlk, M., Roques-Carmes, C., Fan, S., Miller, D. A., Solgaard, O.
  2026; 15 (1)
- **Co-harvesting universe coldness and solar energy for tri-generation of cooling, electricity, and heating** *CELL REPORTS PHYSICAL SCIENCE*
  Garcia, I., Lehmann, B., Fan, S., Huang, G.
  2026; 7 (8)
- **Intracavity Laser Wavelength Tuning by a Programmable Forward-Only Silicon Photonics Interferometer Mesh.** *ACS photonics*
  Vlk, M., Valdez, C. G., Kroo, A. R., Roques-Carmes, C., Fan, S., Miller, D. A., Solgaard, O.
  2026; 13 (16): 4475-4483
- **Optical isolation and circulation using quantum frequency conversion on a chip.** *Science advances*
  Hu, J., Yuan, H., Akin, J., Fan, S., Fang, K.
  2026; 12 (32): eaef0501
- **IntracavityLaser Wavelength Tuning by a ProgrammableForward-Only Silicon Photonics Interferometer Mesh** *ACS PHOTONICS*
  Vlk, M., Valdez, C. G., Kroo, A. R., Roques-Carmes, C., Fan, S., Miller, D. A. B., Solgaard, O.
  2026
- **Bilayer nonlocal flat optics** *ELIGHT*
  Tang, H., Fan, S., Jie, Y., Nguyen, H., Mazur, E., Cao, Y.
  2026; 6 (1)
- **Toward quantum sensing of electron beams using solid-state spins.** *Proceedings of the National Academy of Sciences of the United States of America*
  Grzesik, J. M., Catanzaro, D., Roques-Carmes, C., Rosenthal, E. I., van de Stolpe, G. L., Karnieli, A., Scuri, G., Biswas, S., Leedle, K. J., Black, D. S., Byer, R. L., Kaminer, I., England, et al
  2026; 123 (25): e2531808123
- **Metacrystals: inversely-designed 3D-printed intelligent panels for 6G communications.** *Nature communications*
  Asgari, M. M., Catrysse, P. B., Yuan, S. S., Wang, H., Fan, S., Asadchy, V.
  2026; 17 (1)
- **Metamaterial-enhanced near-field radiative heat transfer.** *Nature*
  Wang, Z., Yu, R., Salihoglu, H., Luo, X., Li, Z., Kim, H., Liu, X., Huang, T., Zhong, Y., Fan, S., Shen, S.
  2026
- **Quasinormal Mode Basis for Open Floquet Photonic Systems.** *Physical review letters*

Sun, Y., Fan, S., Hu, G.
2026; 136 (20): 206903

- **Topology of the Generalized Brillouin Zone of One-Dimensional Models.** *Physical review letters*
Wang, H., Zhong, J., Fan, S.
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- **Variational Processing of Multimode Squeezed Light** *PRX QUANTUM*
Karnieli, A., Mor, P., Roques-Carmes, C., Lustig, E., Sloan, J., Vuckovic, J., Miller, D. A. B., Fan, S.
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- **Reciprocity-based compound symmetries in inhomogeneous chiral and Tellegen media [Invited]** *OPTICAL MATERIALS EXPRESS*
Ozaktas, E., Guo, C., Fan, S.
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- **Dynamic control of intrinsic optical chirality via MEMS-integrated photonic crystals** *OPTICA*
Du, F., Tang, H., Liu, Y., Zhang, M., Lou, B., Gao, G., Li, X., Enriquez, A., Fan, S., Mazur, E.
2026; 13 (3): 449-456

- **Experimental observation of energy-band Riemann surface.** *Science advances*
Cheng, D., Wang, H., Zhong, J., Lustig, E., Roques-Carmes, C., Fan, S.
2026; 12 (12): eaec8239

- **Publisher Correction: Dynamic realization of emergent high-dimensional optical vortices.** *Nature communications*
Kim, D., Park, G., Choi, Y. S., Baucour, A., Hwang, J., Kim, J., Park, S., Yun, H. S., Shin, J., Wang, H., Fan, S., Yoon, D. K., Seo, et al
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- **A single-layer color router for solid-state image sensors** *APPLIED PHYSICS LETTERS*
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- **Realization of the tellegen effect in resonant optical metasurfaces** *ELIGHT*
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- **Scalable Carbon Dioxide Capture Using Clay-Derived Zeolites via Atomic Rearrangement.** *Journal of the American Chemical Society*
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- **Generating Topological Nondiffracting Beams Using High-Quality-Factor Nonlocal Metasurfaces** *ACS PHOTONICS*
Kim, D., Pelzman, C., Guo, C., Long, O., Fan, S., Cho, S.
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- **Purcell-enhanced solid-state laser cooling** *PHYSICAL REVIEW APPLIED*
Benzaouia, M., Fan, S.
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- **A cryogenic near-field thermal diode leveraging superconducting phase transitions.** *Nature nanotechnology*
Luan, Y., Yan, S., Guan, J., Majumder, A., Isshiki, Y., Wang, Z., Mali, R., Yu, R., Fan, S., Meyhofer, E., Reddy, P.
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- **Braiding of dynamical eigenvalues of Hermitian bosonic Kitaev chains** *PHYSICAL REVIEW A*
Wang, H., Fan, S.
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- **A broadband electromagnetic circulator in magnetized plasma** *APPLIED PHYSICS LETTERS*
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- **Ideal optical antimatter using passive lossy materials under complex frequency excitation.** *Light, science & applications*
Long, O. Y., Catrysse, P. B., Han, S., Fan, S.

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- **Joint control of coherent transmission, reflection, and absorption** *PHYSICAL REVIEW B*
  Li, S., Kim, D., Fan, S., Guo, C.
  2025; 112 (24)
- **Photonic Shankar Skyrmion.** *Physical review letters*
  Wang, H., Fan, S.
  2025; 135 (23): 233803
- **Photonic Shankar Skyrmion** *PHYSICAL REVIEW LETTERS*
  Wang, H., Fan, S.
  2025; 135 (23)
- **Dynamic realization of emergent high-dimensional optical vortices.** *Nature communications*
  Kim, D., Park, G., Choi, Y. S., Baucour, A., Hwang, J., Kim, J., Park, S., Yun, H. S., Shin, J., Wang, H., Fan, S., Yoon, D. K., Seo, et al
  2025; 16 (1): 9788
- **John Joannopoulos (1947-2025)** *NATURE PHOTONICS*
  Soljacic, M., Fan, S., Povinelli, M. L.
  2025
- **Quadrature-dependent lattice dynamics of dissipative microcombs** *NATURE PHOTONICS*
  Lustig, E., Guidry, M. A., Lukin, D. M., Fan, S., Vuckovic, J.
  2025
- **Editorial Interview: The Cool Power of Light** *IEEE JOURNAL OF SELECTED TOPICS IN QUANTUM ELECTRONICS*
  Fan, S.
  2025; 31 (6)
- **Formulation of Dispersive and Dissipative Time-Varying Media as a Floquet Matrix Eigenproblem.** *Physical review letters*
  Sun, Y., Fan, S., Hu, G.
  2025; 135 (15): 156903
- **Ultrafast space-time optical merons in momentum-energy space.** *Nature communications*
  Yessenov, M., Dorrah, A. H., Guo, C., Hall, L. A., Park, J. S., Free, J., Johnson, E. G., Capasso, F., Fan, S., Abouraddy, A. F.
  2025; 16 (1): 8592
- **Universal programmable and self-configuring optical filter** *OPTICA*
  Miller, D. A. B., Roques-carmes, C., Valdez, C. G., Kroo, A. R., Vlk, M., Fan, S., Solgaard, O.
  2025; 12 (9): 1417-1426
- **Cavity quantum electrodynamics in a finite-bandwidth squeezed reservoir** *PHYSICAL REVIEW APPLIED*
  Le, T., Lukin, D. M., Roques-Carmes, C., Karnieli, A., Lustig, E., Guidry, M. A., Fan, S., Vuckovic, J.
  2025; 24 (3)
- **Near-Field Dynamical Casimir Effect.** *Physical review letters*
  Yu, R., Fan, S.
  2025; 135 (11): 116901
- **Near-Field Dynamical Casimir Effect** *PHYSICAL REVIEW LETTERS*
  Yu, R., Fan, S.
  2025; 135 (11)
- **Twist-Induced Beam Steering and Blazing Effects in Photonic Crystal Devices.** *Light, science & applications*
  Roy, N., Lou, B., Fan, S., Mayer, A., Lobet, M.
  2025; 14 (1): 263
- **Quantum nanophotonics with energetic particles: X-rays and free electrons** *PROGRESS IN QUANTUM ELECTRONICS*
  Shi, X., Lee, W., Karnieli, A., Lohse, L., Gorlach, A., Wong, L., Salditt, T., Fan, S., Kaminer, I., Wong, L.

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- **Transport Measurements of Majorization Order for Wave Coherence.** *Physical review letters*
  Guo, C., Miller, D. A., Fan, S.
  2025; 135 (5): 053801
- **Transport Measurements of Majorization Order for Wave Coherence** *PHYSICAL REVIEW LETTERS*
  Guo, C., Miller, D. A. B., Fan, S.
  2025; 135 (5)
- **Topological Nature of Edge States for One-Dimensional Systems without Symmetry Protection.** *Physical review letters*
  Zhong, J., Wang, H., Poddubny, A. N., Fan, S.
  2025; 135 (1): 016601
- **Topological Nature of Edge States for One-Dimensional Systems without Symmetry Protection** *PHYSICAL REVIEW LETTERS*
  Zhong, J., Wang, H., Poddubny, A. N., Fan, S.
  2025; 135 (1)
- **Nonlocality in photonic materials and metamaterials: roadmap** *OPTICAL MATERIALS EXPRESS*
  Monticone, F., Mortensen, N., Fernandez-Dominguez, A. I., Luo, Y., Zheng, X., Tserkezis, C., Khurgin, J. B., Shahbazyan, T., Chaves, A. J., Peres, N. M. R., Wegner, G., Busch, K., Hu, et al
  2025; 15 (7): 1544-1709
- **Free-space topological optical textures: tutorial** *ADVANCES IN OPTICS AND PHOTONICS*
  Shen, Y., Wang, H., Fan, S.
  2025; 17 (2): 295-374
- **Lorentz-Drude Dipoles in the Radiative Limit and Their Modeling in Finite-Difference Time-Domain Methods** *ANNALEN DER PHYSIK*
  Wang, H., Fan, S.
  2025
- **All-Dielectric Meta-Atoms for Three-Dimensional Isotropic Chiral Metamaterials** *ACS PHOTONICS*
  Ozaktas, E., Braun, P. V., Fan, S.
  2025
- **Automated Modal Analysis of Entanglement with Bipartite Self-Configuring Optics** *ACS PHOTONICS*
  Roques-Carmes, C., Karnieli, A., Miller, D. A. B., Fan, S.
  2025
- **End-to-end design of multicolor scintillators for enhanced energy resolution in X-ray imaging.** *Light, science & applications*
  Min, S., Choi, S., Pajovic, S., Vaidya, S., Rivera, N., Fan, S., Soljačić, M., Roques-Carmes, C.
  2025; 14 (1): 158
- **An adaptive moiré sensor for spectro-polarimetric hyperimaging** *NATURE PHOTONICS*
  Tang, H., Lou, B., Du, F., Gao, G., Zhang, M., Ni, X., Hu, E., Yacoby, A., Cao, Y., Fan, S., Mazur, E.
  2025
- **Spatiotemporal Steering of Nondiffracting Wave Packets.** *Physical review letters*
  Wang, H., Guo, C., Fan, S.
  2025; 134 (7): 073803
- **Unitary control of multiport wave transmission** *PHYSICAL REVIEW A*
  Guo, C., Miller, D. A. B., Fan, S.
  2025; 111 (2)
- **Accelerated photonic design of coolhouse film for photosynthesis via machine learning.** *Nature communications*
  Li, J., Jiang, Y., Li, B., Xu, Y., Song, H., Xu, N., Wang, P., Zhao, D., Liu, Z., Shu, S., Wu, J., Zhong, M., Zhang, et al
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- **Control of Chirality and Directionality of Nonlinear Metasurface Light Source via Moiré Engineering.** *Physical review letters*
  Zhou, H., Ni, X., Lou, B., Fan, S., Cao, Y., Tang, H.

2025; 134 (4): 043801

- **Decoherence-free many-body Hamiltonians in nonlinear waveguide quantum electrodynamics** *PHYSICAL REVIEW RESEARCH*
  Karnieli, A., Tziperman, O., Roques-Carmes, C., Fan, S.
  2025; 7 (1)
- **Nighttime electric power generation at a density of 350 mW/m2 via radiative cooling** *CELL REPORTS PHYSICAL SCIENCE*
  Assawaworrarit, S., Zhou, M., Fan, L., Fan, S.
  2025; 6 (1)
- **Shaping space-time wave packets beyond the paraxial limit using a dispersion magnifier** *PHYSICAL REVIEW A*
  Kim, D., Guo, C., Catrysse, P. B., Fan, S.
  2025; 111 (1)
- **RCWA4D: Electromagnetic solver for layered structures with incommensurate periodicities** *COMPUTER PHYSICS COMMUNICATIONS*
  Lou, B., Fan, S.
  2025; 306
- **Legume: A guided-mode expansion method for photonic crystal slabs for inverse design and light-matter interaction**
  Zanotti, S., Minkov, M., Nigro, D., Gerace, D., Fan, S., Andreani, L., IEEE
  IEEE.2025: 49-50
- **Space-time optical merons in free space**
  Yessenov, M., Dorrah, A. H., Guo, C., Hall, L. A., Parke, J., Free, J., Johnson, E. G., Capasso, F., Fan, S., Abouraddy, A. F., IEEE
  IEEE.2025
- **Nonreciprocal scintillation using magnetophotonic crystals**
  Long, O. Y., Pajovic, S., Roques-Carmes, C., Tsurimaki, Y., Rivera, N., Soljacic, M., Boriskina, S., Fan, S., IEEE
  IEEE.2025
- **Generation of Light Bullet via Stimulated Brillouin Scattering in a Guided-Wave System**
  Huang, D., Guo, C., Fan, S., IEEE
  IEEE.2025
- **Emerging quadrature lattices of Kerr combs**
  Lustig, E., Guidry, M., Lukin, D., Fan, S., Vuckovic, J., IEEE
  IEEE.2025
- **Engineerable many-body Hamiltonians in nonlinear waveguide quantum electrodynamics**
  Karnieli, A., Tziperman, O., Roques-Carmes, C., Poddubny, A., Fan, S., IEEE
  IEEE.2025
- **Control of chirality and directionality of nonlinear metasurface light source via twisting**
  Zhou, H., Ni, X., Lou, B., Fan, S., Cao, Y., Tang, H., IEEE
  IEEE.2025
- **Ultra-compact synthesis of spatiotemporal optical fields**
  Yessenov, M., Mhibik, O., Mach, L., Hayward, T. M., Menon, R., Glebov, L., Divliansky, I., Abouraddy, A. F., IEEE
  IEEE.2025
- **A general framework for interactions between electron beams and quantum optical systems**
  Grzesik, J., Roques-Carmes, C., Karnieli, A., Black, D. S., Catanzaro, D., Solgaard, O., Fan, S., Vuckovic, J., IEEE
  IEEE.2025
- **Transport Measurements of the Majorization Order for Wave Coherence**
  Guo, C., Miller, D. A. B., Fan, S., IEEE
  IEEE.2025
- **Strong intracavity squeezing in a Kerr resonator**
  Trung Kien Le, Lustig, E., Schul, L., Guidry, M. A., Lukin, D. M., Fan, S., Vuckovic, J., IEEE

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- **Near-field dynamical Casimir effect**
  Yu, R., Fan, S., IEEE
  IEEE.2025
- **Variational optical processors**
  Roques-Carmes, C., Karnieli, A., Miller, D. A. B., Fan, S., IEEE
  IEEE.2025
- **Cavity Quantum Electrodynamics in Finite-Bandwidth Squeezed Reservoir**
  Trung Kien Le, Lukin, D., Roques-Carmes, C., Karnieli, A., Guidry, M. A., Lustig, E., Fan, S., Vuckovic, J., IEEE
  IEEE.2025
- **Continuous-variable quantum information processing in real and synthetic dimensions with self-configuring optics**
  Karnieli, A., Roques-Carmes, C., Mor, P., Lustig, E., Sloan, J., Vuckovic, J., Miller, D. A. B., Fan, S., IEEE
  IEEE.2025
- **Modeling point dipoles in the radiative limit in finite-difference time-domain methods**
  Wang, H., Fan, S., IEEE
  IEEE.2025
- **Experimental observation of non-Abelian lattice gauge fields for photons in synthetic frequency dimensions**
  Cheng, D., Wang, K., Roques-Carmes, C., Lustig, E., Long, O., Wang, H., Fan, S., IEEE
  IEEE.2025
- **Weyl points in a twisted multilayer photonic system**
  Abrashuly, A., Guo, C., Papadakis, G. T., Catrysse, P. B., Fan, S., IEEE
  IEEE.2025
- **Switchable radiative cooling based on phase-change materials**
  Veronis, G., Emrose, M., Zhou, M., Fan, S.
  edited by Subramania, G. S., Foteinopoulou, S.
  SPIE-INT SOC OPTICAL ENGINEERING.2025
- **Multi-degree-of-freedom control of nonlinear optical two-dimensional quantum materials**
  Tang, H., Wang, Y., Ni, X., Watanabe, K., Taniguchi, T., Fan, S., Mazur, E., Yacoby, A., Cao, Y.
  edited by Majumdar, A., Torres, C. M., Deng, H.
  SPIE-INT SOC OPTICAL ENGINEERING.2025
- **Guided Space-Time Wavepacket Generation through Stimulated Brillouin Scattering in Waveguide System**
  Huang, D., Guo, C., Fan, S.
  edited by Moses, J.
  SPIE-INT SOC OPTICAL ENGINEERING.2025
- **Quantum optics with free electrons: from quantum sensing to strong coupling and single-photon nonlinearity**
  Karnieli, A., Roques-Carmes, C., Yu, R., Fan, S.
  edited by Shahriar, S. M.
  SPIE-INT SOC OPTICAL ENGINEERING.2025
- **Highly sensitive and efficient 1550 nm photodetector for room temperature operation** *AIP ADVANCES*
  Rituraj, Yu, Z., Kandegedara, R. B., Fan, S., Krishnamurthy, S.
  2025; 15 (1)
- **Non-Abelian lattice gauge fields in photonic synthetic frequency dimensions.** *Nature*
  Cheng, D., Wang, K., Roques-Carmes, C., Lustig, E., Long, O. Y., Wang, H., Fan, S.
  2025; 637 (8044): 52-56
- **Pole and zero edge state invariant for one-dimensional non-Hermitian sublattice symmetry** *PHYSICAL REVIEW B*
  Zhong, J., Wang, H., Fan, S.

2024; 110 (21)

- **Enhanced Free-Electron-Photon Interactions at the Topological Transition in van der Waals Heterostructures.** *Nano letters*
  Yu, R., Fan, S.
  2024
- **Fictitious pole scheme for extending the spectrum of material permittivities in Casimir force calculations** *PHYSICAL REVIEW B*
  Iizuka, H., Fan, S.
  2024; 110 (23)
- **Kirchhoff's law violation within the main solar wavelength range** *APPLIED PHYSICS LETTERS*
  Park, Y., Fan, S.
  2024; 125 (24)
- **Passivity constraints on the relations between transmission, reflection, and absorption eigenvalues** *PHYSICAL REVIEW B*
  Guo, C., Fan, S.
  2024; 110 (20)
- **Nonreciprocal scintillation using one-dimensional magneto-optical photonic crystals** *PHYSICAL REVIEW APPLIED*
  Long, O. Y., Pajovic, S., Roques-Carmes, C., Tsurimaki, Y., Rivera, N., Soljacic, M., Boriskina, S., Fan, S.
  2024; 22 (5)
- **Subambient daytime radiative cooling of vertical surfaces.** *Science (New York, N.Y.)*
  Xie, F., Jin, W., Nolen, J. R., Pan, H., Yi, N., An, Y., Zhang, Z., Kong, X., Zhu, F., Jiang, K., Tian, S., Liu, T., Sun, et al
  2024; 386 (6723): 788-794
- **Legume: A free implementation of the guided-mode expansion method for photonic crystal slabs** *COMPUTER PHYSICS COMMUNICATIONS*
  Zanotti, S., Minkov, M., Nigro, D., Gerace, D., Fan, S., Andreani, L.
  2024; 304
- **Weyl points in a twisted multilayer photonic system** *APPLIED PHYSICS LETTERS*
  Abrashuly, A., Guo, C., Papadakis, G. T., Catrysse, P. B., Fan, S.
  2024; 125 (17)
- **Irreversible thermodynamics and the ZT figure of merit for thermophotovoltaics** *PHYSICAL REVIEW APPLIED*
  Tsurimaki, Y., Fan, S.
  2024; 22 (4)
- **Non-Hermitian photonic band winding and skin effects: a tutorial** *ADVANCES IN OPTICS AND PHOTONICS*
  Wang, H., Zhong, J., Fan, S.
  2024; 16 (3): 659-748
- **Measuring, processing, and generating partially coherent light with self-configuring optics.** *Light, science & applications*
  Roques-Carmes, C., Fan, S., Miller, D. A.
  2024; 13 (1): 260
- **Dual-ring resonator design for enhanced thermal isolation and optical performance** *JOURNAL OF THE OPTICAL SOCIETY OF AMERICA B-OPTICAL PHYSICS*
  Dede, E. M., Wang, J., Schmalenberg, P. D., Rodrigues, S. P., Fans, S.
  2024; 41 (9): 2140-2148
- **On-chip multi-degree-of-freedom control of two-dimensional materials.** *Nature*
  Tang, H., Wang, Y., Ni, X., Watanabe, K., Taniguchi, T., Jarillo-Herrero, P., Fan, S., Mazur, E., Yacoby, A., Cao, Y.
  2024
- **Unitary control of partially coherent waves. I. Absorption** *PHYSICAL REVIEW B*
  Guo, C., Fan, S.
  2024; 110 (3)
- **Strong Coupling and Single-Photon Nonlinearity in Free-Electron Quantum Optics** *ACS PHOTONICS*

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- **Unitary control of partially coherent waves. II. Transmission or reflection** *PHYSICAL REVIEW B*
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- **Free-Space Beam Steering with Twisted Bilayer Photonic Crystal Slabs** *ACS PHOTONICS*
Lou, B., Tang, H., Du, F., Gao, G., Mazur, E., Fan, S.
2024
- **One-dimensional non-Hermitian band structures as Riemann surfaces** *PHYSICAL REVIEW A*
Wang, H., Fan, L., Fan, S.
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- **Theory for Broadband Large-Area Purcell Enhancement** *ACS PHOTONICS*
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