

YOU ZHOU

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EDUCATION

- 2015 Ph.D. in Applied Physics, Harvard University
- 2010 B.S. in Physics, Peking University

PROFESSIONAL EXPERIENCE

- 2026– Associate Professor of Materials Science and Engineering, University of Maryland
- 2021–26 Assistant Professor of Materials Science and Engineering, University of Maryland
- 2015–20 Postdoctoral Fellow, Harvard University

AWARDS AND HONORS

- 2026 Junior Faculty Outstanding Research Award, University of Maryland
- 2024 2DM Young Scientist Award, 2D Materials, IOP Publishing
- 2023 Ralph E. Powe Junior Faculty Enhancement Award, ORAU
- 2023 Outstanding Young Scientist, Maryland Academy of Sciences
- 2023 IUPAP Early Career Scientist Prize in Condensed Matter
- 2022 Department of Energy Early Career Award
- 2021 NSF Career Award
- 2018 Forbes 30 Under 30–Science
- 2013 MRS Graduate Student Award
- 2012 Ernst Habicht Fellowship, Harvard University

SELECTED PUBLICATIONS

Author of more than 65 peer-reviewed publications with over 8,000 citations and an h-index of 42 (Google Scholar). Selected works are listed below; the full list appears in the complete CV. (* Equal Contribution; †Corresponding Author)

1. L. Zhang, L. Gu, H. S. Adlong, A. Christianen, E. Dizer, R. Ni, R. Ma, S. Park, H. Jang, T. Taniguchi, K. Watanabe, I. Esterlis, R. Schmidt, A. Imamoglu and Y. Zhou[†], “Wigner polarons probe the dynamics of a Wigner crystal in a monolayer semiconductor,” *Nat. Phys.*, in press (2026).
2. P. Upadhyay, D. G. Suárez-Forero, T.-S. Huang, M. J. Mehrabad, B. Gao, S. Sarkar, D. Session, K. Watanabe, T. Taniguchi, Y. Zhou, M. Knap and M. Hafezi, “Giant enhancement of exciton diffusion near an electronic Mott insulator,” *Science* **391**(6783), 394–398 (2026).
3. B. Gao, M. Ghafariasl, M. J. Mehrabad, T.-S. Huang, L. Zhang, D. Session, P. Upadhyay, R. Ma, G. Alshalan, D. G. Suárez-Forero, S. Sarkar, S. Park, J. Houk, K. Watanabe, T. Taniguchi, M. Xie, Y. Zhou[†] and M. Hafezi[†], “Probing quantum anomalous Hall states in twisted bilayer WSe₂ via attractive polaron spectroscopy,” *Phys. Rev. X* **16**, 021037 (2025).
4. L. Gu, L. Zhang, S. Felsenfeld, B. Gao, R. Ma, S. Park, H. Jang, K. Watanabe, T. Taniguchi and Y. Zhou[†], “Quantum confining excitons with electrostatic moiré superlattices,” *Phys. Rev. Lett.* **135**, 026901 (2025).

5. S. Sarkar, M. J. Mehrabad, D. G. Suárez-Forero, L. Gu, C. Flower, L. Xu, K. Watanabe, T. Taniguchi, S. Park, J. Houk, Y. Zhou[†] and M. Hafezi[†], “Sub-wavelength optical lattice in 2D materials,” *Sci. Adv.* **11**, eadv2023 (2025).
6. L. Gu, L. Zhang, R. Ni, D. S. Wild, M. Xie, S. Park, H. Jang, K. Watanabe, T. Taniguchi, M. Hafezi and Y. Zhou[†], “Giant optical nonlinearity of Fermi polarons in atomically thin semiconductors,” *Nat. Photonics* **18**, 816–822 (2024).
7. L. Zhang, L. Gu, R. Ni, M. Xie, S. Park, H. Jang, K. Watanabe, T. Taniguchi and Y. Zhou[†], “Electrical control and transport of tightly bound interlayer excitons in a MoSe₂/hBN/MoSe₂ heterostructure,” *Phys. Rev. Lett.* **132**, 216903 (2024).
8. Y. Zhou, J. Sung, E. Brutschea, I. Esterlis, Y. Wang, G. Scuri, R. J. Gelly, H. Heo, T. Taniguchi, K. Watanabe, M. D. Lukin, P. Kim, E. Demler and H. Park, “Bilayer Wigner crystals in a transition metal dichalcogenide heterostructure,” *Nature* **595**, 48–52 (2021).
9. Y. Zhou, G. Scuri, J. Sung, R. J. Gelly, D. S. Wild, K. De Greve, A. Y. Joe, T. Taniguchi, K. Watanabe, P. Kim, M. D. Lukin and H. Park, “Controlling excitons in an atomically thin membrane with a mirror,” *Phys. Rev. Lett.* **124**, 027401 (2020).
10. Y. Zhou*, G. Scuri*, D. S. Wild*, A. A. High*, A. M. Dibos, L. A. Jauregui, C. Shu, K. De Greve, K. Pistunova, A. Y. Joe, T. Taniguchi, K. Watanabe, P. Kim, M. D. Lukin and H. Park, “Probing dark excitons in atomically thin semiconductors via near-field coupling to surface plasmon polaritons,” *Nat. Nanotechnol.* **12**, 856–860 (2017).
11. Y. Zhou, X. Guan, H. Zhou, K. Ramadoss, S. Adam, H. Liu, S. Lee, J. Shi, M. Tsuchiya, D. D. Fong and S. Ramanathan, “Strongly correlated perovskite fuel cells,” *Nature* **534**, 231–234 (2016).
12. Y. Zhou and S. Ramanathan, “Mott memory and neuromorphic devices,” *Proc. IEEE* **103**, 1289–1310 (2015). [Invited]

TEACHING

Developed and taught five undergraduate and graduate courses at the University of Maryland, including Introduction to Quantum Materials and Devices (ENMA 436/636), Introduction to Solid State Physics (ENMA 460/PHYS 431), and Quantum Mechanics for Engineers (ENMA 434).

MENTORING AND SERVICE

Advised 5 Ph.D. students, 2 research scientists, 4 postdoctoral associates and 21 undergraduate researchers. Delivered 20 invited conference talks and 37 institutional colloquia and seminars. Service includes NSF, DOE and DoD proposal review; the MRS Early Career Professionals Subcommittee; symposium organization at MRS and APS; and referee for *Nature*, *Science*, *Nat. Phys.*, *Nat. Photonics* and 30+ other journals.

OUTREACH

Mentored high-school, community-college and undergraduate students through the Army Educational Outreach Program, the National Security Scholars Summer Internship Program, the Summer RISE Program and the Forbes 30 Under 30 × Close the Gap Foundation, with talks at regional summer camps and college seminars that broaden participation in science and engineering.