# 教授



刘晓泽，男，教授，博士生导师。主要研究内容是人工微结构中光和低维半导体耦合的腔量子电动力学及其应用。研究的半导体包括二维半导体、低维钙钛矿半导体和有机无机复合半导体等。结合这些半导体，在光场相干调控、非线性光学和玻色子凝聚态等方面的量子光学和光电应用开展了较为系统深入的研究。多次以第一作者在**Nature Materials, Nature Photonics, Phys. Rev. Lett., PNAS, Nano Lett.**等期刊上发表过研究成果。课题组目前承担国家自然科学基金委、国家科技部以及中央高校基本科研业务费的科研项目。

研究方向：半导体物理；微纳光子学；光腔量子电动力学
课题组常年招收科研实习本科生、硕士和博士研究生、博士后研究人员。欢迎感兴趣的同学和青年学者的加入。
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学习与工作经历：
2004-2008 华中科技大学 本科
2008-2014 美国纽约市立大学 博士
2015-2019 美国加州大学伯克利分校 博士后

Dr. Xiaoze Liu, PhD Advisor, current research focuses on the cavity quantum dynamics and related photonic applications based on the coupling between photons and low-dimensional semiconductors in artificial microstructures. The studied semiconductors include two-dimensional semiconductors, low-dimensional perovskites and hybrid organic-inorganic composites. By integrating these semiconductors with photonic structures, we investigate intriguing physical topics such as optical nonlinearity, optical coherence and bosonic condensation for fundamental study and applications in quantum optics and optoelectronics. Research works have been published in scientific journals, including first-authored papers in **Nature Materials, Nature Photonics, Phys. Rev. Lett., PNAS, Nano Lett.,** etc. Our research also gets support from the National Natural Science Foundation and National Key R&D Program.

Research areas: Semiconductor physics; micro- and nano-photonics; cavity quantum electrodynamics
We are recruiting undergraduate interns, graduate students and postdoctoral scholar. Please do contact me if interested.
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Main education and academic experiences:
2004-2008 Huazhong University of Science and Technology, China, B.S.
2008-2014 City University of New York, US, PhD
2015-2019 University of California, Berkeley, US, Postdoc

近期主要代表论文 (*共同一作) / Selected Publications (*Co-first author)

**X. Liu***, J. Yi*, et al. “Nonlinear valley phonon scattering under the strong coupling regime”. **Nature Materials,** 20, 1210-1215 (2021).
**X. Liu**, T. Galfsky, et al. “Strong light-matter coupling in two-dimensional atomic crystals”. **Nature Photonics**, 9, 30-34 (2015).
**X. Liu***, W. Bao*, Q. Li, C. Ropp, Y. Wang, X. Zhang, “Control of coherently coupled exciton-polaritons in monolayer tungsten disulphide”. **Phys. Rev. Lett.**, 119, 027403(2017).
M. Slootsky*, **X. Liu***, V. M. Menon, S. R. Forrest, “Room temperature Frenkel-Wannier-Mott hybridization of degenerate excitons in a strongly coupled microcavity”. **Phys. Rev. Lett.**, 112(7), 076401 (2014).
**X. Liu***, J. Yi*, Q. Li*, et al. “Nonlinear Optics at the excited states of exciton polaritons in two-dimensional atomic crystals”. **Nano Lett.**, 20, 1676-1685 (2020)
W. Bao*, **X. Liu***, F. Xue*, et al., “Observation of solid state Rydberg exciton polariton and its condensate in a perovskite cavity”. **Proc. Natl. Acad. Sci. U. S. A.**, 116, 20274-20279 (2019).
S. Lan, **X. Liu**, et al. “Observation of strong excitonic magneto-chiral anisotropy in twisted bilayer van der Waals crystals”, **Nature Comm.**, 12, 2088 (2021).
K. Appavoo, **X. Liu**, V. M. Menon, M. Y. Sfeir, “Excitonic lasing in solution-processed subwavelength nanosphere assemblies”. **Nano Lett.**, 16(3), 2004-2010(2016).
Z. Sun, J. Gu, A. Ghazaryan, Z. Shotan, C. Considine, M. Dollar, **X. Liu**, P. Ghaemi, V. M. Menon, “Optical control of room-temperature valley polaritons”. **Nature Photonics**, 11(8), 491-496 (2017).