

Qiang Gao

Curriculum Vitae

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Google Scholar

Education

- 2018–2023 **Ph.D. in Physics**, *The University of Texas at Austin*, Austin, TX
Thesis: *Exotic phases in condensed matter systems: space-time crystals and moiré superlattices.*
Advisors: Qian Niu.
- 2013–2017 **B.Sc. in Applied Physics**, *University of Science and Technology of China*, Hefei, China
Thesis: *On the Efficiency and its Enhancement of the Quantum-dot based light-emitting diode.*
Advisor: Zhenyu Zhang.

Appointments

- 2024–present **Postdoctoral Fellow**, *Harvard University*, Cambridge, MA
- 2019–2023 **Research Assistant**, *The University of Texas at Austin*, Austin, TX
- 2018–2019 **Teaching Assistant**, *The University of Texas at Austin*, Austin, TX
- 2017–2018 **Research Assistant**, *USTC & Shenzhen University*, China

Publications

Peer-reviewed

1. **Q. Gao**, R. A. Lanzetta, P. Ledwith, J. Wang, and E. Khalaf, “Bootstrapping the quantum Hall problem,” *Physical Review X* **15**, 031034 (2025).
2. Y. Li, C. Shi, F. Zhang, X. Liu, Y. Xue, V.-A. Ha, **Q. Gao**, C. Dong, Y.-C. Lin, L. N. Holtzman, *et al.*, “Robust supermoiré pattern in large-angle single-twist bilayers,” *Nature Physics* (2025), 1–8.
3. Y. Li, F. Zhang, V.-A. Ha, Y.-C. Lin, C. Dong, **Q. Gao**, Z. Liu, X. Liu, S. H. Ryu, H. Kim, *et al.*, “Tuning commensurability in twisted van der Waals bilayers,” *Nature* **625**, 494–499 (2024).
4. **Q. Gao**, J. Dong, P. Ledwith, D. Parker, and E. Khalaf, “Untwisting moiré physics: Almost ideal bands and fractional Chern insulators in periodically strained monolayer graphene,” *Physical Review Letters* **131**, 096401 (2023).
5. **Q. Gao** and Q. Niu, “Semiclassical dynamics of electrons in a space-time crystal: Magnetization, polarization, and current response,” *Physical Review B* **106**, 224311 (2022).
6. **Q. Gao** and E. Khalaf, “Symmetry origin of lattice vibration modes in twisted multilayer graphene: Phonons versus moiré phonons,” *Physical Review B* **106**, 075420 (2022).
7. **Q. Gao**, Y. Ren, and Q. Niu, “DC current generation and power feature in strongly driven Floquet–Bloch systems,” *Physical Review Research* **4**, 013216 (2022).
8. **Q. Gao**, Z. Lin, X. Li, and Z. Zhang, “Spontaneous surface plasmon polariton decay of band-edge excitons in quantum dots near a metal surface,” *Physical Review B* **103**, 035416 (2021).
9. **Q. Gao** and Q. Niu, “Floquet–Bloch oscillations and intraband Zener tunneling in an oblique spacetime crystal,” *Physical Review Letters* **127**, 036401 (2021).
10. Y. Ren, **Q. Gao**, A. H. MacDonald, and Q. Niu, “WKB estimate of bilayer graphene’s magic twist angles,” *Physical Review Letters* **126**, 016404 (2021).
11. H. Shen, **Q. Gao**, Y. Zhang, Y. Lin, Q. Lin, Z. Li, L. Chen, Z. Zeng, X. Li, Y. Jia, *et al.*, “Visible quantum dot light-emitting diodes with simultaneous high brightness and efficiency,” *Nature Photonics* **13**, 192–197 (2019).

Preprints

1. **Q. Gao**, Z. Han, and E. Khalaf, “Bootstrapping Flat-band Superconductors: Rigorous Lower Bounds on Superfluid Stiffness,” arXiv:2506.18969 (2025).
2. Z. Liu, **Q. Gao**, Y. Li, X. Liu, F. Zhang, D. S. Kim, Y. Ni, M. Mackenzie, H. Abudayyeh, K. Watanabe, *et al.*, “Field-Tunable Valley Coupling and Localization in a Dodecagonal Semiconductor Quasicrystal,” arXiv:2408.02176 (2024).

Talks

- 08/2025 Seminar @UChicago, Chicago, IL. *Quantum Many Body Bootstrap beyond Energies.*
- 05/2025 Kid’s Seminar @Harvard, Boston, MA. *Bootstrapping the Quantum Hall problem.*
- 03/2025 APS March Meeting, Anaheim, CA. *Bootstrapping the Quantum Hall problem.*
- 03/2023 APS March Meeting, Las Vegas, NV. *Almost ideal Chern bands in periodically strained graphene.*
- 03/2018 APS March Meeting, Los Angeles, CA. *Surface plasmon polariton controlled de-excitation of quantum dot.*

Skills

- Languages Mandarin Chinese (native), English
- Coding MATLAB, Mathematica, Python, L^AT_EX, Java

Awards and Fellowships

- 2018–2023 Provost’s Graduate Excellence Fellowship, The University of Texas at Austin
- 2017 Outstanding Undergraduate Thesis, University of Science and Technology of China