

**JIA LI**  
CURRICULUM VITAE

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- EDUCATION**
- Northwestern University, Evanston, Illinois**  
Ph.D. in Physics: November 2014  
Advisor: William P. Halperin
- Northwestern University, Evanston, Illinois**  
Masters in Physics: November 2011  
Advisor: William P. Halperin
- Tsinghua University, Beijing, China**  
Bachelors of Science in Physics and Math: July 2008
- RESEARCH**
- Columbia University, New York, New York**  
Post-doctoral researcher in Physics: December 2014 to December 2018  
Advisor: Cory Dean
- APPOINTMENTS**
- Brown University, Providence, RI**  
Assistant Professor of Physics: from January 2019
- AWARDS**
- Sloan Research Fellowship, Sloan Foundation**  
February 2023
- CAREER award, National Science Foundation**  
January 2022
- Salamon Faculty Award, Brown University**  
January 2021
- PUBLICATIONS**
1. Jiang-Xiazi Lin, Yibang Wang, Naiyuan Zhang, T. Taniguchi, K. Watanabe, Liang Fu, **J.I.A. Li**, (2023). Spontaneous momentum polarization and diodicity in Bernal bilayer graphene. arXiv preprint arXiv:2302.04261, [[arXiv:2302.04261](https://arxiv.org/abs/2302.04261)]
  2. Naiyuan Zhang, Jiang-Xiazi Lin, Yibang Wang, T. Taniguchi, K. Watanabe, Liang Fu, **J.I.A. Li**, (2022). Valley ferromagnetism and superconductivity in magic-angle trilayer graphene. arXiv preprint arXiv:2209.12964, [[arXiv:2209.12964](https://arxiv.org/abs/2209.12964)]
  3. Erin Morissette, Jiang-Xiazi Lin, T. Taniguchi, K. Watanabe, James Hone, Mathias S. Scheurer, M. Lilly, A. Mounce, **J.I.A. Li**, (2023). Electron spin resonance and collective excitations in magic-angle twisted bilayer graphene. *Nature Physics*, in press [[arXiv:2206.08354](https://arxiv.org/abs/2206.08354)]
  4. Jiang-Xiazi Lin\*, Phum Siriviboon\*, Harley D. Scammell, T. Taniguchi, K. Watanabe, James Hone, Mathias S. Scheurer, **J.I.A. Li**, (2022). Zero-field superconducting diode effect in twisted trilayer graphene. *Nature Physics*, **18**, 1221–1227 [[doi.org/10.1038/s41567-022-01700-1](https://doi.org/10.1038/s41567-022-01700-1)]

5. Phum Siriviboon\*, Jiang-Xiazi Lin\*, Harley D. Scammell, T. Taniguchi, K. Watanabe, James Hone, Mathias S. Scheurer, **J.I.A. Li**, (2021). A new flavor of correlation and superconductivity in small twist-angle trilayer graphene. arXiv preprint arXiv:2112.07127, [[arXiv:2112.07127](https://arxiv.org/abs/2112.07127)]
6. Harley D. Scammell, **J.I.A. Li**, Mathias S. Scheurer, (2022). Theory of zero-field superconducting diode effect in twisted trilayer graphene. *2D Materials* [[10.1088/2053-1583/ac5b16](https://doi.org/10.1088/2053-1583/ac5b16)]
7. X. Liu, N.J. Zhang, T. Taniguchi, K. Watanabe, **J.I.A. Li**, (2022). Isospin order in superconducting magic-angle twisted trilayer graphene. *Nature Physics*, **18**, 522-527 [[doi: 10.1038/s41567-022-01515-0](https://doi.org/10.1038/s41567-022-01515-0)]
8. Jiang-Xiazi Lin, Ya-Hui Zhang, Erin Morissette, Zhi Wang, T. Taniguchi, K. Watanabe, James Hone, **J.I.A. Li**, (2022). Spin-orbit driven ferromagnetism at half moiré filling in magic-angle twisted bilayer graphene. *Science*, **375**: 6579, 437-441 [[doi: 10.1126/science.abh2889](https://doi.org/10.1126/science.abh2889)]
9. Xiaomeng Liu\*, **J.I.A. Li\***, T. Taniguchi, K. Watanabe, James Hone, Bertrand I. Halperin, Philip Kim, Cory R. Dean, (2022). Crossover between Strongly-coupled and Weakly-coupled Exciton Superfluids. *Science*, **375**: 6577 205-209 [[doi: 10.1126/science.abg1110](https://doi.org/10.1126/science.abg1110)]
10. Yu Saito, Fangyuan Yang, Xiaoxue Liu, Jingyuan Ge, T. Taniguchi, K. Watanabe, **J.I.A. Li**, Erez Berg, Andrea F. Young, (2021). Isospin Pomeranchuk effect and the entropy of collective excitations in twisted bilayer graphene. *Nature*, **592**: 220-224 [[doi.org/10.1038/s41586-021-03409-2](https://doi.org/10.1038/s41586-021-03409-2)]
11. X. Liu, Z. Wang, T. Taniguchi, K. Watanabe, O. Vafek, **J.I.A. Li**, (2021). Tuning electron correlation in magic-angle twisted bilayer graphene using Coulomb screening. *Science*, **371**: 1261 [[doi: 10.1126/science.abb8754](https://doi.org/10.1126/science.abb8754)]
12. Cory Dean, Philip Kim, **J.I.A. Li**, and Andrea Young, (2020), Fractional Quantum Hall Effect in Graphene, Pages (317-375) in: Fractional Quantum Hall Effects: New Developments, Editor: Bertrand I. Halperin, and Jainendra K. Jain. World Scientific
13. **J.I.A. Li\***, Q. Shi\*, Y. Zeng, T. Taniguchi, K. Watanabe, J. Hone, and C.R. Dean, (2019). Pairing states of composite fermions in double-layer graphene. *Nature Physics*, **15**: 898-903 [[doi:10.1038/s41567-019-0547-z](https://doi.org/10.1038/s41567-019-0547-z)]
14. Y. Zeng\*, **J.I.A. Li\***, S.A. Dietrich, O.M. Ghosh, K. Watanabe, T. Taniguchi, J. Hone and C.R. Dean, (2019). High-Quality Magnetotransport in Graphene Using the Edge-Free Corbino Geometry. *Phys. Rev. Lett.*, **122**: 137701 [[doi:10.1103/PhysRevLett.122.137701](https://doi.org/10.1103/PhysRevLett.122.137701)]
15. A.M. Zimmerman, **J.I.A. Li**, M.D. Nguyen and W.P. Halperin, (2018). Orbital-Flop Transition of Angular Momentum in a Topological Superfluid. *Phys. Rev. Lett.*, **121**: 255303 [[doi:10.1103/PhysRevLett.121.255303](https://doi.org/10.1103/PhysRevLett.121.255303)]
16. A.A. Zibrov, R.Peng, C. Kometter, **J.I.A. Li**, C.R. Dean, T. Taniguchi, K. Watanabe, M. Serbyn, A.F. Young, (2018). Emergent Dirac gullies and gully nematic quantum Hall states in ABA trilayer graphene. *Phys. Rev. Lett.*, **121**: 167601 [[doi:10.1103/PhysRevLett.121.167601](https://doi.org/10.1103/PhysRevLett.121.167601)]
17. **J.I.A. Li**, C. Tan, S. Chen, Y. Zeng, T. Taniguchi, K. Watanabe, J. Hone, and C.R. Dean, (2017). Even denominator fractional quantum Hall state in bilayer graphene. *Science*, **358**(6363): 648-652 [[doi: 10.1126/science.aao2521](https://doi.org/10.1126/science.aao2521)]
18. \* **J.I.A. Li**, T. Taniguchi, K. Watanabe, J. Hone, and C.R. Dean, (2017). Excitonic Superfluid Phase in Double Bilayer Graphene. *Nature Physics*, **13**: 751-755 [[doi:10.1038/nphys4140](https://doi.org/10.1038/nphys4140)]

19. B. M. Hunt, **J.I.A. Li**, A. A. Zibrov, L. Wang, T. Taniguchi, K. Watanabe, J. Hone, C. Dean, M. Zaletel, R. C Ashoori, and A. F. Young, (2017). Direct measurement of discrete valley and orbital quantum numbers in bilayer graphene. *Nature Communication*, **8**: 948 [[doi:10.1038/s41467-017-00824-w](https://doi.org/10.1038/s41467-017-00824-w)]
20. **J.I.A. Li**, T. Taniguchi, K. Watanabe, J. Hone, A. Levchenko, and C.R. Dean, (2016). Negative Coulomb Drag in Double Bilayer Graphene. *Phys. Rev. Lett.*, **117**: 046802 [[doi:10.1103/PhysRevLett.117.046802](https://doi.org/10.1103/PhysRevLett.117.046802)]
21. **J.I.A. Li**, A.M. Zimmerman, J. Pollanen, C.A. Collett, and W.P. Halperin, (2015). Anisotropic Phases of Superfluid He 3 in Compressed Aerogel. *Phys. Rev. Lett.*, **114**: 105302 [[doi:10.1103/PhysRevLett.112.115303](https://doi.org/10.1103/PhysRevLett.112.115303)]
22. **J.I.A. Li**, A.M. Zimmerman, J. Pollanen, C.A. Collett, W.J. Gannon and W.P. Halperin, (2014). Stability of Superfluid  $^3\text{He-B}$  in Compressed Aerogel. *Phys. Rev. Lett.*, **112**: 115303 [[doi:10.1103/PhysRevLett.112.115303](https://doi.org/10.1103/PhysRevLett.112.115303)]
23. **J.I.A. Li**, A.M. Zimmerman, J. Pollanen, C.A. Collett, W.J. Gannon and W.P. Halperin, (2014). Orientation of the Angular Momentum in Superfluid  $^3\text{He-A}$  in a Stretched Aerogel, *Journal of Low Temperature Physics*, **175**: 31-36 [[doi:10.1007/s10909-013-0917-3](https://doi.org/10.1007/s10909-013-0917-3)]
24. **J.I.A. Li**, J. Pollanen, A.M. Zimmerman, C.A. Collett, W.J. Gannon and W.P. Halperin, (2013). The Superfluid Glass Phase of  $^3\text{He-A}$ . *Nature Physics*, **9**: 775-779 [[doi:10.1038/nphys2806](https://doi.org/10.1038/nphys2806)]
25. C.A. Collett, J. Pollanen, **J.I.A. Li**, W.J. Gannon and W.P. Halperin, (2013). Nonlinear field dependence and f-wave interactions in superfluid  $^3\text{He}$ . *Phys. Rev. B*, **87**: 024502 [[doi:10.1103/PhysRevB.87.024502](https://doi.org/10.1103/PhysRevB.87.024502)]
26. A.M. Zimmerman, J. Pollanen, **J.I.A. Li**, C.A. Collett, W.J. Gannon and W.P. Halperin, (2013). Anisotropy of Silica Aerogels Induced by Small Strain. *Journal of Low Temperature Physics*, **171**: 745-749 [[doi:10.1007/s10909-012-0753-x](https://doi.org/10.1007/s10909-012-0753-x)]
27. C.A. Collett, J. Pollanen, **J.I.A. Li**, W.J. Gannon and W.P. Halperin, (2013). Zeeman Splitting and Nonlinear Field-Dependence in Superfluid  $^3\text{He}$ . *Journal of Low Temperature Physics*, **171**: 214-219 [[doi:10.1007/s10909-012-0692-6](https://doi.org/10.1007/s10909-012-0692-6)]
28. **J.I.A. Li**, J. Pollanen, C.A. Collett, W.J. Gannon and W.P. Halperin, (2012). Pressure Dependence of the Longitudinal Resonance Frequency of  $^3\text{He}$  Superfluid Phases in Aerogel. *Journal of Physics: Conference Series*, **400**: 012039 [[doi:10.1088/1742-6596/400/1/012039](https://doi.org/10.1088/1742-6596/400/1/012039)]
29. J. Pollanen, **J.I.A. Li**, C.A. Collett, W.J. Gannon, W.P. Halperin and J.A. Sauls, (2012). New Chiral Phases of Superfluid  $^3\text{He}$  Stabilized by Anisotropic Silica Aerogel. *Nature Physics*, **8**: 312-320 [[doi:10.1038/nphys2220](https://doi.org/10.1038/nphys2220)]
30. J. Pollanen, **J.I.A. Li**, C.A. Collett, W.J. Gannon and W.P. Halperin, (2011). Identification of Superfluid Phases of  $^3\text{He}$  in Uniformly Isotropic 98.2% Aerogel. *Phys. Rev. Lett.*, **107**, 195301 [[doi:10.1103/PhysRevLett.107.195301](https://doi.org/10.1103/PhysRevLett.107.195301)]
31. T.L. Qu, **J. Li**, Y. G. Zhao, J. W. Mei, X. Liu, H. F. Tian, J. P. Shi, S. M. Guo, J. Li, D. N. Zheng, and J. Q. Li, (2009). Nonlinear current-voltage behavior and giant positive magnetoresistance in nonmagnetic Au/Yttria-stabilized zirconia/Si heterostructures. *Appl. Phys. Lett.*, **95**, 242113 [[doi:10.1063/1.3274130](https://doi.org/10.1063/1.3274130)]

**PRESENTATIONS**

- ◇ MIT Chez Pierre seminar "Angle-resolved transport measurement in magic-angle graphene moiré systems" at MIT, Cambridge, MA, Oct, 2022.
- ◇ Invited talk, "Spontaneous breaking of in-plane rotational symmetry in magic-angle graphene moiré systems", the Two Dimensional Electronics Beyond Graphene Gordon Research Conference, New Hampshire, Jun, 2022.
- ◇ Invited talk, "Tuning electron correlation in magic-angle graphene moiré systems using Coulomb screening", APS March Meeting, Chicago, Mar, 2022.
- ◇ Colloquium "Superconducting diode effect in graphene moiré systems", CIQM Quantum Materials Seminar Series, Harvard University, Cambridge, Feb 23th, 2022.
- ◇ Condensed Matter Seminar, Hong Kong University of Science and Technology, Hong Kong, China, Nov, 2021.
- ◇ Condensed Matter Seminar, Pennsylvania State University, State College, PA, Nov, 2021.
- ◇ Condensed Matter Seminar, University of Texas in Austin, Austin, TX, Oct, 2021.
- ◇ Invited talk, Transport and Spectroscopy of Two-dimensional Systems, Landau institute of theoretical physics, Moscow, Aug, 2021.
- ◇ Invited talk, Quantum Hall Effect: Status Report, Simons Center for Geometry and Physics, Stony Brook University, Stony Brook, NY, May, 2021.
- ◇ Keynote talk, Graphene and 2D Materials International Conference (GrapheneForUS), Columbia University, New York city, February, 2021.
- ◇ Condensed Matter Seminar, Washington University in St. Louis, St. Louis, MO, November, 2020.
- ◇ Condensed Matter Seminar, Michigan State University, East Lansing, MI, November, 2020.
- ◇ Quantum Nano Seminar, Dartmouth College, Hanover, NH, November, 2020.
- ◇ Invited talk "Tuning electron correlation in magic-angle twisted bilayer graphene using Coulomb screening" at the KITP workshop Correlated Phases in Moiré Materials: One Year Later, University of California at Santa Barbara, Santa Barbara, CA, August, 2020.
- ◇ Seminar "Highly tunable emergent quantum phenomena in double-layer graphene" University of Kentucky, Lexington, KY, April, 2020.
- ◇ Invited talk "Exotic exciton transport in graphene double-layer structure" at the APS March Meeting, Denver, CO, March, 2020.
- ◇ Seminar "Novel exciton coupling in graphene double-layer, anisotropic exciton flow and the emergent exciton solid, Florida State University, Tallahassee, January 31st, 2020.
- ◇ Seminar "Emergent correlated electronic states in graphene double-layer: from fractional quantum Hall effect to exciton solid, Carnegie Mellon University, Pittsburgh, November 24th, 2019.
- ◇ Seminar "Two-component composite fermions and their pairing states in double-layer graphene", Washington University in St Louis, St. Louis, October 28th, 2019.
- ◇ Colloquium "Excitonic coupling and transport in double-layer graphene", CIQM Quantum Materials Seminar Series, Harvard University, Cambridge, September 25th, 2019.
- ◇ Colloquium "Quantum condensates in the flat land: bridging the superfluidity and superconductivity, Brown University, Providence, September 23th, 2019.
- ◇ Invited talk "Two-component composite fermions and their pairing states in double-layer graphene" the 7th International Workshop on Emergent Phenomena in Quantum Hall Systems, Beijing, China, June 3rd, 2019.
- ◇ MIT Chez Pierre seminar "Two-component composite fermions and their pairing states in double-layer graphene" at MIT, Cambridge, MA, April 8th, 2019.
- ◇ Invited seminar "Correlated electron states in graphene double layer Heterostructure" at Northwestern University, Evanston, IL, May 10th, 2018.

- ◇ Contributed talk "Single and double component even denominator FQH States in bilayer graphene" at Graphene2017, 22nd International Conference on Electronic Properties of Two Dimensional Systems (EP2DS-22), University Park, PA, 2017.
- ◇ Invited seminar "Excitonic Superfluid Phase in Double Bilayer Graphene Heterostructure" at Chinese Academy of Science, Institute of Metal Research, Shenyang, China, 2017.
- ◇ Contributed talk "Excitonic Superfluid Phase in Double Bilayer Graphene" at Graphene2017, the 7th edition of the largest European Conference & Exhibition in Graphene & 2D materials, Barcelona, Spain, 2017.
- ◇ Contributed talk "Negative Coulomb Drag in Double Bilayer Graphene" at 33rd International Conference on the Physics of Semiconductors, Beijing, China, 2016.
- ◇ Invited talk " $^3\text{He}$  in Aerogel: Engineering Superfluid States Stability with Disorder" at the APS March Meeting, Denver, CO, 2014.