

Education

Ph.D. in Physics September 2021
Massachusetts Institute of Technology Advisor: Prof. Joseph G. Checkelsky

B.S. in Applied Sciences and Engineering May 2014
Rutgers University Undergrad. Thesis Advisor: Prof. Karin Rabe

Appointments

Assistant Professor of Applied Physics January 2024 – Present
Columbia University, Department of Applied Physics and Applied Mathematics

Postdoctoral Researcher, Simons Junior Fellow September 2021 – December 2023
Columbia University, Department of Physics Advisor: Prof. Cory R. Dean

Graduate Research Assistant September 2014 – September 2021
Massachusetts Institute of Technology, Department of Physics Advisor: Prof. Joseph G. Checkelsky

Honors and Awards

Moore Fellow in Materials Synthesis July 2024
Gordon and Betty Moore Foundation

Junior Fellow, Simons Society of Fellows September 2021
Simons Foundation

Marc A. Kastner Fellowship September 2014
Massachusetts Institute of Technology
Department of Physics

Paul. L. Leath Outstanding Honors Thesis Award June 2014
Rutgers University
Department of Physics and Astronomy

Barry M. Goldwater Scholarship, Honorable Mention March 2013

Selected Manuscripts († equal contribution, ‡ corresponding)

5. *Sliding Disassembly of van der Waals Heterostructures*
J. Pack[†], K. V. Falb[†], S. Ghosh, X. Wu, K. T. Chu, F. Mesple, E. Thompson, Z. Zhang, K. Watanabe, T. Taniguchi, D. N. Basov, A. N. Pasupathy, M. Yankowitz, C. R. Dean[‡], and **A. Devarakonda**[‡]
arXiv:2510.19064 (*submitted*)
4. *Frustrated Electron Hopping from the Orbital Configuration in a Two-Dimensional Lattice*
A. Devarakonda^{†‡}, C. S. Koay[†], D. G. Chica[†], A. K. Kundu, M. Thinel, Z. Lin, A. B. Georgescu, S. Rossi, S. Y. Han, M. E. Ziebel, M. A. Holbrook, A. Rajapitamahuni, E. Vescovo, T. Taniguchi, K. Watanabe, M. Delor, X.-Y. Zhu, A. N. Pasupathy[‡], R. Queiroz[‡], C. R. Dean[‡], and X. Roy[‡]
Nature Physics. **21**, 1260–1266 (2025).
3. *Evidence of Striped Electronic Phases in a Structurally Modulated Superlattice*
A. Devarakonda, A. Chen, S. Fang, D. Graf, M. Kriener, A. J. Akey, D. C. Bell, T. Suzuki, and J. G. Checkelsky[‡]
Nature. **631**, 526–530 (2024).

2. *Signatures of Bosonic Landau Levels in a Finite-Momentum Superconductor*
A. Devarakonda, T. Suzuki, S. Fang, J. Zhu, D. Graf, M. Kriener, L. Fu, E. Kaxiras, and J. G. Checkelsky[‡]
Nature. **599**, 51–56 (2021).
1. *Clean 2D Superconductivity in a Bulk van der Waals Superlattice*
A. Devarakonda, H. Inoue, S. Fang, C. Ozsoy-Keskinbora, T. Suzuki, M. Kriener, L. Fu, E. Kaxiras, D. C. Bell, and J. G. Checkelsky[‡]
Science. **370**, 231–236 (2020).

Complete list available at <https://www.devarakonda-lab.com/publications>.

Invited Talks

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| 14. [Invited Symposium Speaker] <i>American Physical Society March Meeting 2026</i>
American Physical Society | March 2026
Denver, CO |
| 13. <i>NYSS APS Symposium on Quantum Materials</i>
State University of New York, Buffalo | November 2025
Buffalo, NY |
| 12. <i>Graphene-2D Materials Workshop</i>
University of Basel | August 2025
Basel, Switzerland |
| 11. <i>SPICE Young Research Leaders Group Workshop</i>
Johannes Gutenberg University Mainz | July 2025
Ingelheim, Germany |
| 10. <i>Advances in Solid State Physics and New Materials</i>
Institute of Physics, Serbia | May 2025
Belgrade, Serbia (cancelled) |
| 9. [Keynote] <i>Exploring Unconventional Supercond. Through Complex Phases and Correlations</i>
Gordon Research Seminar | May 2025
Les Diablerets, Switzerland |
| 8. <i>Condensed Matter Seminar</i>
Rutgers University | April 2025
New Brunswick, NJ |
| 7. <i>Geometry and Correlations in Low-dimensional and Topological Materials</i>
Hong Kong University of Science and Technology | December 2024
Hong Kong, HK |
| 6. <i>New Directions in 2D and Moiré Materials</i>
The Flatiron Institute | August 2023
New York, NY |
| 5. <i>Junior Fellows Seminar Series</i>
Simons Foundation, Society of Fellows Retreat | March 2023
Sarasota, FL |
| 4. <i>Dept. of Applied Physics and Applied Mathematics Seminar</i>
Columbia University | January 2023
New York, NY |
| 3. [Invited Symposium Speaker] <i>American Physical Society March Meeting 2022</i>
American Physical Society | March 2022
Chicago, IL |
| 2. <i>Asian-regional Research in High Magnetic Field Meeting</i>
Tohoku University | December 2020
Sendai, Japan (remote) |
| 1. <i>Boston Area Carbon Nanoscience Seminar</i>
Massachusetts Institute of Technology | October 2019
Cambridge, MA |

Teaching

Introduction to Quantum Mechanics (Spring 2024, Spring 2025)

Course Evaluation: 4.3/5.0

Supervision

Postdoctoral Researchers

Dr. Federico Balduini (Ph.D. IBM Zurich, March 2025 –)

Dr. Thomas Werkmeister, awarded Simons Junior Fellowship (Ph.D. Harvard University, August 2025 –)

Dr. Siddharth Singh, joint with Prof. Cory R. Dean (Ph.D. Princeton University, August 2025 –)

Graduate Students

Karl Falb (June 2024 –), Columbia Applied Physics, PhD

Shulami Oh (September 2024 –), Columbia Applied Physics, PhD

Kylie Thompson (January 2025 –), Columbia Applied Physics, PhD

John Kim (September 2025 –), Columbia Applied Physics, PhD

Alaguabirami Alagusundaram (September 2025 –), Columbia Chemical Engineering, MSc

Undergraduate Students

Harvey Runyon (June 2024 –), Columbia Physics

Aidan Gregerson (February 2025 –), Columbia Applied Physics

Ivan Kuznetsov (September 2025 –), Columbia Applied Physics

Professional Service

Editorial and Peer Review:

Referee for Nature Materials, Nature Communications, Nano Letters, PRB, PRL, JACS.

Reviewer for National Science Foundation (NSF) Graduate Research Fellowship.

University Committees:

Columbia University, Engineering and Applied Sciences Junior Faculty Group (1 of 3)

Materials Science and Engineering Program Committee

Ph.D. thesis committee member

Haowen Su (Chemistry), Yinan Dong (Applied Physics), Ling Lan (Applied Mathematics), Sasaank

Bandi (Applied Physics), Christie Koay (Chemistry), Cecilia Chan (Electrical Engineering), Xiaoyan

Huang (Physics), Mark Mathis (Applied Physics)

Broader Impacts

BioBus: Immersive Quantum Science Education

July 2025 – Present

Developing partnership with BioBus to create mobile VR and hands-on crystal visualization tools for K–12 outreach.

Columbia University Engineering the Next Generation (ENG)

July 2025 – September 2025

Bringing high school students from the local community into the lab to provide their first introduction to academic research.

Crystal VR: Creating an Immersive Scientific Tool for Learning and Research

January 2019 – December 2019

Helped develop an immersive, virtual reality (VR) environment where crystal structures can be visualized and manipulated.