

## 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

## Active Grants

*Superlattice and On-chip Design of Novel Quantum Phases* Gordon and Betty Moore Foundation  
Role: Principal Investigator Total Awarded: \$1,200,000  
Duration: July 2024 – June 2028

## Completed Grants

*Junior Fellow, Simons Society of Fellows* Simons Foundation  
Role: Independently Funded Postdoctoral Researcher Total Awarded: \$331,038  
Duration: September 2021 – December 2023

## Selected Manuscripts († equal contribution, ‡ corresponding)

- Frustrated Hopping from Orbital Decoration of a Primitive Two-Dimensional Lattice*  
**A. Devarakonda**<sup>†‡</sup>, C. S. Koay<sup>†</sup>, D. G. Chica<sup>†</sup>, 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<sup>‡</sup>, R. Queiroz<sup>‡</sup>, C. R. Dean<sup>‡</sup>, and X. Roy<sup>‡</sup>  
arXiv:2408.01512 (*Nature Physics*, *accepted*)

4. *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<sup>‡</sup>  
*Nature*. **631**, 526–530 (2024).
3. *Two-Dimensional Heavy Fermions in the van der Waals Metal CeSiI*  
V. Posey, S. E. Turkel<sup>†</sup>, M. Rezaee<sup>†</sup>, **A. Devarakonda**<sup>†</sup>, A. K. Kundu<sup>†</sup>, C. S. Ong<sup>†</sup>, M. Thinel, D. G. Chica, R. Vitalone, R. Jing, S. Xu, D. R. Needell, E. Meirzadeh, M. L. Feuer, A. Jindal, X. Cui, T. Valla, P. Thünstrom, T. Yilmaz, E. Vescovo, D. Graf, X. Zhu, A. Scheie, A. F. May, O. Eriksson, D. N. Basov, C. R. Dean, A. Rubio<sup>‡</sup>, P. Kim, M. Ziebel<sup>‡</sup>, A. Millis<sup>‡</sup>, A. N. Pasupathy<sup>‡</sup>, and X. Roy<sup>‡</sup>  
*Nature*. **625**, 483–488 (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<sup>‡</sup>  
*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<sup>‡</sup>  
*Science*. **370**, 231–236 (2020).  
*Perspective: Layer-cake 2D Superconductivity* L. M. Schoop, *Science*. **370**, 170 (2020).

## Manuscripts († equal contribution, ‡ corresponding)

12. *Electronic Bound States in the Continuum in a 2D Metal*  
M. Thinel, S. Turkel, S. E. Rossi, C. S. Koay, D. G. Chica, X. Huang, M. Holbrook, **A. Devarakonda**, L. M. Nashabeh, A. B. Georgescu, X. Roy<sup>‡</sup>, X.-Y. Zhu<sup>‡</sup>, A. N. Pasupathy<sup>‡</sup>, and R. Queiroz<sup>‡</sup>  
arXiv:2410.19227 (*in review*)
11. *Probing Charge Order of Monolayer NbSe<sub>2</sub> Within a Bulk Crystal*  
D. Azoury<sup>†</sup>, E. Baldini<sup>†</sup>, **A. Devarakonda**, J. Li, S. Fang, P. Williams, R. Comin, J. G. Checkelsky, and N. Gedik<sup>‡</sup>  
arXiv:2308.02772 (*in review*)
10. *Frustrated Hopping from Orbital Decoration of a Primitive Two-Dimensional Lattice*  
**A. Devarakonda**<sup>†‡</sup>, C. S. Koay<sup>†</sup>, D. G. Chica<sup>†</sup>, 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<sup>‡</sup>, R. Queiroz<sup>‡</sup>, C. R. Dean<sup>‡</sup>, and X. Roy<sup>‡</sup>  
arXiv:2408.01512 (*Nature Physics, accepted*)
9. *Engineering Anisotropic Electrodynamics at the Graphene/CrSBr Interface*  
D. J. Rizzo<sup>‡</sup>, E. Seewald, F. Zhao, J. Cox, K. Xie, R. A. Vitalone, F. L. Ruta, D. G. Chica, Y. Shao, S. Shabani, E. J. Telford, M. C. Strasbourg, T. P. Darlington, S. Xu, S. Qiu, **A. Devarakonda**, T. Taniguchi, K. Watanabe, X. Zhu, P. J. Schuck, C. R. Dean, X. Roy<sup>‡</sup>, A. J. Millis, T. Cao, A. Rubio, A. N. Pasupathy<sup>‡</sup>, and D. N. Basov<sup>‡</sup>  
*Nature Communications* **16**, 1853 (2025).
8. *Imaging Strain-controlled Magnetic Reversal in Thin CrSBr*  
K. Bagani<sup>†</sup>, A. Vervelaki<sup>†</sup>, D. Jetter, **A. Devarakonda**, M. Tschudin, B. Gross, D. A. Broadway, C. R. Dean, X. Roy, P. Maletinsky, and M. Poggio<sup>‡</sup>  
*Nano Letters*. **24**, 13068–13074 (2024).
7. *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<sup>‡</sup>  
*Nature*. **631**, 526–530 (2024).
6. *Two-Dimensional Heavy Fermions in the van der Waals Metal CeSiI*  
V. Posey, S. E. Turkel<sup>†</sup>, M. Rezaee<sup>†</sup>, **A. Devarakonda**<sup>†</sup>, A. K. Kundu<sup>†</sup>, C. S. Ong<sup>†</sup>, M. Thinel, D. G. Chica, R. Vitalone, R. Jing, S. Xu, D. R. Needell, E. Meirzadeh, M. L. Feuer, A. Jindal, X. Cui, T. Valla, P. Thünstrom, T. Yilmaz, E. Vescovo, D. Graf, X. Zhu, A. Scheie, A. F. May, O. Eriksson, D. N. Basov, C. R. Dean, A. Rubio<sup>‡</sup>, P. Kim, M. Ziebel<sup>‡</sup>, A. Millis<sup>‡</sup>, A. N. Pasupathy<sup>‡</sup>, and X. Roy<sup>‡</sup>  
*Nature*. **625**, 483–488 (2024).

5. *Signatures of Bosonic Landau Levels in a Finite-Momentum Superconductor*  
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*Science*. **370**, 231–236 (2020).  
*Perspective: Layer-Cake 2D Superconductivity* L. M. Schoop, *Science*. **370**, 170 (2020).
3. *Crystal VR: Creating an Immersive Scientific Tool for Learning and Research*  
S. W. Greenwald, G. McDowell, W. Corning, **A. Devarakonda**, L. Ye, J. G. Checkelsky  
*2019 IEEE International Conference on Engineering, Technology and Education (TALE)*. 1-7 (2019).
2. (News and Views) *Monolayers Have the Edge*  
**A. Devarakonda** and J.G. Checkelsky  
*Nature Physics*. **13**, 630-631 (2017).
1. *Large Anomalous Hall Effect in a Half-Heusler Antiferromagnet*  
T. Suzuki, R. Chisnell, **A. Devarakonda**, Y. T. Liu, W. Feng, D. Xiao, J. W. Lynn, and J. G. Checkelsky<sup>‡</sup>  
*Nature Physics*. **12**, 1119-1123 (2016).

## Invited Talks

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

## Supervision

*Postdoctoral Researchers:* Dr. Federico Balduini (March 2025 –)

*Graduate Students:* Karl Falb (June 2024 –), Shulami Oh (September 2024 –), Kylie Thompson (January 2025 –)

## Teaching

*Spring 2025 – Introduction to Quantum Mechanics* (Undergraduate)

Course Evaluation: In Progress

*Spring 2024 – Introduction to Quantum Mechanics* (Undergraduate)

Course Evaluation: 4.43/5.00

## Outreach Activities

*Columbia University Engineering the Next Generation (ENG)*

June 2022 – August 2022

Mentored two high school students from the local community through a summer research program introducing them 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.

*Center for Integrated Quantum Materials (CIQM) Summer Research Mentor*

May 2016 – November 2018

Guided two undergraduate students from Bunker Hill Community College (BHCC), both military veterans, through their first scientific research experiences.

*MIT Undergraduate Research Opportunities Program (UROP) Mentor*

May 2015 – September 2015

Mentored an MIT undergraduate student through her first experimental research experience.

*Ask a Scientist: Science Outreach to Elementary School Students*

September 2014 – May 2017

Produced online content answering questions about science and technology submitted by students at Wilson Creek Elementary School near Atlanta, GA. ([checkelsky.mit.edu/wces](http://checkelsky.mit.edu/wces))