

# Nishchhal Verma

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## Education

<b>The Ohio State University, Columbus</b> PhD in Physics, Thesis: “ <i>Topology and Correlations in Quantum Materials</i> ” Advisor: Mohit Randeria	2017 – 2022
<b>Indian Institute of Science, Education and Research, Kolkata</b> BS-MS in Physics, Senior Thesis: “ <i>Melting in 2D One Component Plasma</i> ”	2012 – 2017

## Professional Appointments

<b>Department of Physics, Columbia University, New York City</b> Postdoctoral Reserach Scientist Advisor: Raquel Queiroz	2022 – Present
<b>Mechanobiology Institute, Singapore</b> Summer Research Fellow Advisors: Jean-Francois Rupprecht and Jacques Prost	2016
<b>Max-Planck Institute for Radio Astronomy, Bonn</b> DAAD WISE Fellow Advisor: Emmanouil Angelakis	2015

## Honors and Awards

Presidential Fellowship, Ohio State University	2022
Hazel Brown Outstanding TA Award, Ohio State University	2019
University Fellowship, Ohio State University	2017
IAS-INSANA-NASI Fellowship, Govt. of India	2014
KVPY Fellowship, Govt. of India	2012-2017

## Publications

As of September 4, 2025: Total citations – 454; h-index – 10; i10-index – 10

13. **N. Verma**, P. J. W. Moll, T. Holder, R. Queiroz, arxiv:2504.07173 (2025)
12. **N. Verma**, R. Queiroz, arxiv:2503.24344 (2025)
11. **N. Verma**, R. Queiroz, arxiv:2403.07052 (2024)
10. V. Crepel\*, P. Ding\*, **N. Verma**, N. Regnault, R. Queiroz, *Phys. Rev. X* **15**, 021056 (2025)
9. **N. Verma**, R. Queiroz, *Phys. Rev. Lett.* **134**, 106403 (2025)
8. M. Kreidel et al., **N. Verma**, *Phys. Rev. Research* **6**, 043245 (2024)
7. **N. Verma**\*, D. Guerci\*, R. Queiroz, *Phys. Rev. Lett.* **132**, 236001 (2024)
6. T. Webb et al., **N. Verma**, *Nano Lett.* **24**(15), 4393–4399 (2024)
5. **N. Verma**\*, Z. Addison\*, M. Randeria, *Sci. Adv.* **8**, eabq2765 (2022)
4. G. Wu et al., **N. Verma**, *Nano Lett.* **22**(3), 1115–1121 (2022)
3. **N. Verma**, T. Hazra, M. Randeria, *Proc. Natl. Acad. Sci.* **118** (34), e2106744118 (2021)
2. R. Lyu\*, Z. Tuchfeld\*, **N. Verma**\*, *Phys. Rev. B* **103**, 245424 (2021)
1. T. Hazra, **N. Verma**, M. Randeria, *Phys. Rev. X* **9**, 031049 (2019)
0. S. Tlili et al., **N. Verma**, *Proc. Natl. Acad. Sci.* **116** (51), 25430-25439 (2019).

## Technical Skills

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**Languages:** Python, SQL, MATLAB, Julia

**Libraries:** NumPy, SciPy, Pandas, Matplotlib, scikit-learn, seaborn, tqdm

**Tools:** Git, GitHub, GitLab, LaTeX, Bash, Slurm

## Conferences and Talks

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Boulder School for Condensed Matter and Materials Physics, Boulder	July 2025
"Quantum Geometry in Correlated Matter"	May 2025
FTPI Workshop on Quantum Matter, Minneapolis (invited)	
"Time-dependent Quantum Geometry"	April 2025
Max-Planck New York Center Symposium, Flatiron Institute (invited)	
"Quantum Geometry: A new perspective in Quantum Materials"	March 2025
APS Global Physics Summit, Anaheim (invited)	
"Some rules on sum rules"	October 2024
Workshop on moire materials, KITP Santa Barbara (invited)	
"Quantum metric and generalized sum rules" (Blackboard Talk)	June 2024
Aspen Center for Physics, Aspen (invited)	
"Instantaneous response and quantum geometry of insulators"	March 2024
CUNY Graduate Center Conference, New York City (invited)	
APS March Meeting	March 2021, 22, 23, 24
FTPI March Meeting, Minneapolis	March 2024
Gordon Research Conference on Topology and Correlations, Ventura	May 2023
MagLab Theory Winter School, Tallahassee	December 2022
Gordon Research Conference on Strongly Correlated Systems, Mt. Holyoke	May 2022
Topological Matter School, Donostasia-San Sebastian (virtual)	August 2021
Harnessing Quantum Matter Data Revolution, Cornell University (virtual)	June 2021
Natural Language Processing Boot Camp, Erdős Institute, (virtual)	March 2021
Ultra Quantum Matter Summer School, Perimeter Institute (virtual)	August 2020
Data Science Boot Camp, Erdős Institute (virtual)	May 2020
Lindau Nobel Laureates Meeting, Germany	June 2016

## Professional Activities

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<b>Referee</b>	2022 – Present
Reviewer for <i>Phys. Rev. X</i> , <i>Phys. Rev. Lett.</i> , <i>Phys. Rev. B</i> , <i>Nat. Commun.</i>	
<b>Co-Organizer</b>	2022 – 2025
Quantum Materials Seminar, Columbia University	
<b>Chair, Internal Advisory Council</b>	2021 – 2022
Center for Emergent Materials, NSF-MRSEC, Ohio State University	
<b>Mentor</b>	2020 – 2021
Polaris Mentorship Program, Ohio State University	

## References

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**Raquel Queiroz**  
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Columbia University

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**Mohit Randeria**  
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