

# Rishabh Sharma

Simons Center Independent Postdoctoral Fellow, New York University

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## Research Interests

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World models, AI for science, and building physically grounded AI systems.

## Positions

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**Simons Center Independent Postdoctoral Fellow**

Jul 2025 – present

Simons Center for Computational Physical Chemistry, New York University

## Education

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**Integrated Ph.D. in Physics**

2019 – 2025

Tata Institute of Fundamental Research (TIFR), Hyderabad, India Advisor: Prof. Smarajit Karmakar

**B.E. in Mechanical Engineering**

2014 – 2018

Panjab University, Chandigarh, India

## Awards & Fellowships

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**Ramakrishna Cowsik Medal**, TIFR

2025

Best paper across the TIFR system by a researcher under 35.

**Simons Center Independent Postdoctoral Fellowship**, NYU

2025

**Sarojini Damodaran International Student Travel Fellowship**, TIFR

2023

## Publications

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[1] **R. Sharma**, S. Karmakar. *Activity-induced annealing leads to a ductile-to-brittle transition in amorphous solids*. Nature Physics (2025). [doi:10.1038/s41567-024-02724-5](https://doi.org/10.1038/s41567-024-02724-5)  
Featured in [Nature Physics News & Views](#).

[2] M. Adhikari\*, **R. Sharma**\*, S. Karmakar. *Encoding fast and fault-tolerant memories in bulk and nanoscale amorphous solids*. Physical Review Letters (2025). [doi:10.1103/PhysRevLett.134.018202](https://doi.org/10.1103/PhysRevLett.134.018202)

[3] U. A. Dattani\*, **R. Sharma**\*, S. Karmakar, P. Chaudhuri. *Cavitation instabilities in amorphous solids via secondary mechanical perturbations*. arXiv preprint (2023). [arXiv:2303.04529](https://arxiv.org/abs/2303.04529)

\*Equal contribution.

## Research Visits

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**Roskilde University**, Denmark

Nov – Dec 2023

Hosted by Prof. Jeppe Dyre

**Heinrich Heine University Düsseldorf**, Germany

Dec 2023 – Jan 2024

Hosted by Prof. Jürgen Horbach

## Talks

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“Glass and Time” Group, Roskilde University, Denmark

Nov 2023

Institut für Theoretische Physik, University of Göttingen, Germany

Jan 2024

Computational Soft Matter Seminar, University of Amsterdam, Netherlands  
Soft Matter Group, Heinrich Heine University Düsseldorf, Germany

Jan 2024  
Jan 2024

### **Selected Media Coverage**

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[Nature Physics News & Views](#) | [EurekAlert](#) | [Phys.org](#)