

# ANAMITRA SIKDAR

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## Summary

A postgraduate, currently employed as a PhD student in Indian Institute of Technology, Kanpur. Interested in shear instability growth in rocks. I integrate experimental and analytical data of natural rock samples to identify the deformation mechanisms. Possess a keen interest in scientific programming. Committed to continuous learning and professional development.

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## Research Interest

Shear zone growth

Granite metamorphism

EBSD-Orientation imaging microscopy

Grain-scale deformation in rocks

Experimental rock deformation in slow strain rates

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## Education

**Indian Institute of Technology Kanpur**

*PhD Candidate, Earth Sciences*

- PMRF Scheme

Kanpur, India

2019 – Present

**Jadavpur University**

*MSc, Applied Geology*

- First Class, 75.5%

Kolkata, India

2015 – 2017

**Jadavpur University**

*BSc, Geological Sciences*

- First Class with Distinction, 73.25%

Kolkata, India

2012 – 2015

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## Fellowships & Awards

**Prime Minister's Research Fellows (PMRF) Scheme, MoE**

2020 – Present

**GATE, MHRD**

2019 – 2020

**UGC-NET, Junior Research Fellowship**

not opted

**INSPIRE Scholarship, DST, Ministry of Science & Technology**

2012 – 2017

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## Teaching Assistantship

**Teaching Physics(+2) in Kendriya Vidyalaya**

2021 – 22 / I

*PMRF TA Duty*

- Standard XI & XII.

**Experimental Rock Mechanics and Rock Physics**

2020 – 21 / II

*ES657A*

- This was a laboratory intensive course. I was in charge of the laboratory classes and teaching the sample preparation and experiments on triaxial and uniaxial compressive tests on rocks.

**Fundamentals of Earth Sciences**

2020 – 21 / I

*ESO213A*

- This was an introductory course offered to both the engineering and science students. I was in charge of the student evaluation (assignments, mid-semester and end-semester) process.

**Field Geology**

2019 – 20 / II

*ES414A*

- This was an outdoor workshop course. I was assigned to train the students identify and understand the kinematics of deformation signatures in rocks.

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## Experience

### Junior Technical Assistant

2019 (5 months)

*Rock Deformation Lab - Dept. of Earth Sciences*

IIT Kanpur, India

- Compressive strength tests in thermally stressed natural coal samples; Goal: To enhance the permeability in subsurface coal seams.
- Mastered laboratory scale deformation and sample preparation techniques for natural rock and synthetic samples in uniaxial and triaxial settings.

### Research Associate

2018 – 2019

*Rock Deformation Lab - Dept. of Earth Sciences*

IIT Kanpur, India

- Strain analysis of pre-cracked synthetic polymers - PMMA; Goal: To find a relationship of orientation of deviatoric stress and friction in the fault surface.

### Research Associate

2017 (5 months)

*JU-Geodynamics Laboratory*

Jadavpur University, India

- Attempted to simulate discrete element modelling of crack propagation using parallel computation in LAMMPS.

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## Conference Proceedings

- Mukherjee, M., Sikdar, A., & Misra, S. (2021). Compressive strength and permeability of thermally-cracked coals: implications for gas storage and transport in subsurface coal seams (No. EGU21-15482). Copernicus Meetings. DOI: [10.5194/egusphere-egu21-15482](https://doi.org/10.5194/egusphere-egu21-15482).
- Mukherjee, M., Sikdar, A., & Misra, S. (2021). Strength and permeability of thermally micro-fracked coals: implications to gas storage and transport. RDS - VI, virtual conference.

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## Experience with Instrumentation

- Scanning electron microscope (independent operator)
- Triaxial testing set up for rocks (independent operator)
- Cutting, polishing, milling of rock samples (proficient)
- Paterson's torsion apparatus - High PT (familiar with working)

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## Software Skills

- MATLAB (experienced)
- QGIS, ArcGIS (experienced)
- Inkscape, AI (proficient)
- ImageJ, Adobe Photoshop (experienced)
- Theriak-Domino, Perple\_X (familiar)
- Profex (experienced)

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## Conferences/ Workshops/ Courses attended outside IITK

- Principles of chemical kinetics (177508-WS 21/22), Ruhr-Universität Bochum, Ongoing
- MTEX Workshop, Technische Universität Chemnitz, 2021
- TSG @ 50: Virtual AGM, The Geological Society of London, 2021
- Phase Equilibria Modelling in Petrology – Practical approach using Perple-X, RTD-ER-GSITI, 2021
- PTt trajectory of metamorphic processes from a combination of pseudosection calculations, nucleation and growth simulations, and diffusion modelling using different approaches, Geochemical Society, 2020