Dr. Joseph D'Souza

Assistant Professor

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EDUCATIONAL QUALIFICATIONS

Doctor of Philosophy

Thesis: "Crustal Evolution of the Pur-Banera Supracrustal Belt and Basement Rocks in the Bhilwara Region, Rajasthan, Northwestern India"

2015–2020 IIT Bombay CPI: 8.82/10

Supervisors: Prof. Hetu Sheth & Prof. N. Prabhakar

Master of Science and Technology

Thesis: "Characterization and Emplacement Mechanism of a Mafic Pluton within the Bhavani Gneissic Complex, Erode District, Chennai, India"

2012–2015 ISM Dhanbad GPA: 8.20/10

Bachelor of Science First Class

2009–2012 St. Xavier's College, Mumbai

WORK EXPERIENCE

Assistant Professor

January 2021–Present IIT (ISM) Dhanbad

- **Courses:** Structural Geology (T/P), Geodynamics (T), Introduction to Petrology (T/P), Geomorphology (T), & Earth Sciences (T)
- **Faculty Advisor:** M.Sc.Tech program
- **Executive Committee Member:** TEXMiN

ACHIEVEMENTS

- Naik and Rastogi Award for **Excellence in PhD** research at IIT Bombay (2021)
- UGC Research Fellowship: Rank 42
- Graduate Aptitude Test Engineering: Rank 41

RESEARCH PROJECTS

DST–SERB (Startup Research Grant)

- Title: *"A study on the formation and tectono-metamorphic evolution of granites and alkaline igneous complexes in the Salem block, southern India: Implications for lower crustal processes and the geodynamics of the Southern Granulite Terrane"*
- Role: Principal Investigator
- Project value: ₹ 28,87,000
- Status: Ongoing (Dec 2021 – Dec 2023)

INTERESTS AND EXPERTISE

- Structural Geology and Petrology ★★★★★
- Geochronology (zircon & monazite) ★★★★★
- Precambrian Crustal Evolution ★★★★★
- Proficient in operating the electron microprobe (mineral chemistry and U–Th–total Pb monazite dating; *Cameca SX-Five*)
- Experienced with operating the secondary ion mass spectrometer (*Cameca IMS 1280-HR*)
- Phase equilibria studies
- **Software**: CorelDRAW, Perple_X, Stereonet, XMapTools, ImageJ, Origin, Faultkin

ADDITIONAL INFORMATION

- **Oral presentation** at Goldschmidt, Hawaii (2022) and IIT Kharagpur (2016)
- **Poster presentation** at EGU, Vienna (2019)
- Extensive fieldwork across igneous, sedimentary and deformed metamorphic terranes viz., Bhilwara, Sandmata & Kishangarh (RJ), Salem block (TN), Mumbai & Malvan (MH), Bagalkot (KA), and Gondwana (JH).

JOURNAL PUBLICATIONS

- **D'Souza, J.**, Prabhakar, N., Sheth, H., Xu, Y. 2021. Metamorphic P–T–t–d evolution of the Mesoproterozoic Pur-Banera supracrustal belt, Aravalli Craton, northwestern India: Insights from phase equilibria modelling and zircon-monazite geochronology of metapelites. **Journal of Metamorphic Geology**, 39(9), 1173-1204.
- **D'Souza, J.**, Prabhakar, N., Xu, Y., Sharma, K.K., Sheth, H., 2019. Mesoarchaean to Neoproterozoic (3.2–0.8 Ga) crustal growth and reworking in the Aravalli Craton, northwestern India: Insights from the Pur-Banera supracrustal belt. **Precambrian Research**, 332, art. 105383, doi: 10.1016/j.precamres.2019.105383.
- **D'Souza, J.**, Sheth, H., Xu, Y., Wegner, W., Prabhakar, N., Sharma, K.K., Koeberl. C., 2020. Neoarchaean crustal reworking in the Aravalli Craton: Petrogenesis and tectonometamorphic history of the Malola granite, Bhilwara area, northwestern India. **Geological Journal**, 55(12), 8186-8210. doi: 10.1002/gj.3927.
- Ghosh, S., **D'Souza, J.**, Goud, B.R. and Prabhakar, N., 2022. A review of the Precambrian tectonic evolution of the Aravalli Craton, northwestern India: Structural, metamorphic and geochronological perspectives from the basement complexes and supracrustal sequences. **Earth-Science Reviews**, 232, art. 104098. doi: 10.1016/j.earscirev.2022.104098
- Samant, H., Pundalik, A., **D'Souza, J.**, Sheth, H., Lobo, K.C., D'Souza, K., Patel, V., 2017. Geology of the Elephanta Island fault zone, western Indian rifted margin, and its significance for understanding the Panvel flexure. **Journal of Earth System Science**, 126, 9.
- Ghosh, S., Prabhakar, N. and **D'Souza, J.**, 2021. Origin of multilayer corona textures in mafic granulites from the Sandmata Complex, Aravalli Craton (northwestern India): Petrological characteristics and tectonic implications. **Contributions to Mineralogy and Petrology**, 176(5), 35.

JOURNAL PUBLICATIONS

- Sheth, H., Pal, I., Patel, V., Samant, H., **D'Souza, J.**, 2017. Breccia-cored columnar rosettes in a rubbly pahoehoe lava flow, Elephanta Island, Deccan Traps, and a model for their origin. **Geoscience Frontiers** 8, 1299–1309.
- Sheth, H., Samant, H., Patel, V., **D'Souza, J.**, 2017. The Volcanic Geoheritage of the Elephanta Caves, Deccan Traps, Western India. **Geoheritage** 9, 359–372.

CONFERENCE PRESENTATIONS

- **D'Souza, J.**, Prabhakar, N., Xu, Y., 2022. Decoding the *P–T–t–d* evolution of the Pur-Banera belt, Aravalli Craton, India: Insights from phase equilibria modelling and zircon-monazite geochronology of metapelites (Goldschmidt 22)
- **D'Souza, J.**, Prabhakar, N., Xu, Y., Sharma, K.K., Sheth, H., 2019. Mesoarchaean (3.2 Ga) crust in the Aravalli Craton: Deformation history and zircon-monazite geochronology of the Bhilwara basement gneisses and Pur-Banera belt, Rajasthan, northwestern India (EGU 19)

REFERENCES

- Prof. Hetu Sheth – PhD supervisor (IIT Bombay)

  @ hcsheth@iitb.ac.in
- Prof. N. Prabhakar – PhD co-supervisor (IITB)

  @ prabhakarnaraga@iitb.ac.in
- Prof. Kanchan Pande (IIT Bombay)

  @ kanchanpande@iitb.ac.in
- Prof. R. Anand (IIT ISM Dhanbad)

  @ anandr@iitism.ac.in