List of Research Topics for Admission to PhD program, Autumn Semester 2021-22

Note to Candidates: A list of research topics corresponding to the research areas of interest that you have mentioned in the application form is given below. Go through these topics and let the interview committee know your topic(s) of interest at the time of interview.

1. Molecular taphonomy of N-bearing macromolecules
2. Biomarker signature of Permian sediments and coals of India
3. Sedimentological investigation for the establishment of Mesozoic paleodrainage pattern in western India
4. Paleo-morphodynamics and ichnology of the Sandhan Formation of Kutch basin, Gujarat
5. Understanding the mid-to upper-crustal exhumation through apatite petrochronology and thermochronology
6. Episodic weathering based on (U-Th)/He dating of Fe and Mn lateritic duricrust
7. Understanding hydrothermal processes and wall-rock alteration based on experimental and field signatures
8. Structural evolution and metamorphic petrogenesis of the Banded gneissic complex-II, Aravalli Craton (north western India)
9. Assessing interplay between vertical and horizontal tectonics in the crustal evolution of the Aravalli Craton (NW India)
10. Integrated Petrophysical and Rock physics modelling of carbonate reservoirs from Mukta field, Western Offshore region
11. Petrophysical modelling of Carbonate Reservoirs from DCS area, Western Offshore Basin
12. Machine learning tools and data analytics for modelling geophysical data
13. Crustal magnetic field modelling of Swarm satellite mission
14. DFSAR data analysis of Chandrayaan-2 mission to the Moon
15. Noise attenuation studies in SAR interferometry data using the nonlinear EMD-Hölder technique
16. Nonlinear signal analysis of seismological data of global active tectonic zones
17. Subsurface characterization of Eastern Ghats Mobile Belt region using joint inversion of Electrical Resistivity data and Magnetotelluric data
18. Enhancing Signal-to-Noise Ratio in Magnetotelluric data using Wavelet analysis
19. Wavelet analysis of the ionospheric total electron content (TEC) data and scintillation data during geomagnetically quiet and disturbed periods: A comparative study
20. Development of cloud-based geophysical data interpretation algorithms
21. Numerical modelling and inversion of large-scale EM datasets
22. Study on electrical and geochemical signatures associated with REE mineralization
23. High-resolution seismic imaging to decipher the genesis of swarm sequences in Palghar, using low-cost seismographs
24. Imaging crustal and sub-crustal lithospheric structure beneath the Aravalli-Delhi fold belt
25. 3D crustal modelling of the Indian plate using Bayesian inversion
26. Global-scale tomography using a very long period seismic data
27. Crustal structure beneath Himalayan and Tibetan plateau
28. Study of gravity anomalies, flexural isostasy and basin formation in selected passive margin basins of India: Implications for hydrocarbon potential
29. Gravity and magnetic investigations along the Pranhita-Godavari and Mahanadi grabens, and their offshore extension: Implications on India-East Antarctica breakup

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