

SIMANCHAL PADHY
ASSOCIATE PROFESSOR, DEPARTMENT OF EARTH SCIENCES &
JOINT FACULTY, MEHTA FAMILY SCHOOL OF DATA SCIENCE & ARTIFICIAL
INTELLIGENCE (MFSDSAI), IIT ROORKEE

<https://scholar.google.com/citations?user=L7IVvncAAAAJ&hl=en>

RESEARCH INTERESTS:

1. Seismic wave propagation and scattering to characterize small-scale heterogeneity, Seismic imaging with ambient noise
2. Signal and Image Processing
3. Machine Learning and Deep Learning for seismic data analysis
4. Modeling of seismic wave propagation and scattering in 3-D heterogeneous media
5. Characterizing Earth's heterogeneities using fractals and non-linear dynamics

EDUCATION:

2005	Ph.D. in Seismology, Osmania University, Hyderabad
1998	M.Sc.Tech in Applied Geophysics, ISM, Dhanbad (First class with Distinction)
1994	M.Sc. in Electronics, Berhampur University (First class)
1992	B.Sc. in Physics, Berhampur University (First class with Distinction)

PROFESSIONAL EXPERIENCE:

mm/yy-mm/yy

12/98-11/99	Project Assistant , CSIR-National Geophysical Research Institute (CSIR-NGRI), Hyderabad
11/99-11/03	Junior Scientist , CSIR-NGRI, Hyderabad
11/03-11/06	Scientist , CSIR-NGRI, Hyderabad
11/06-11/10	Senior Scientist , CSIR-NGRI, Hyderabad
11/10-11/15	Principal Scientist , CSIR-NGRI, Hyderabad
11/15-01/21	Senior Principal Scientist , CSIR-NGRI, Hyderabad
02/21-Till date	Associate Professor , Earth Sciences Department, IIT Roorkee (Joint Faculty, Mehta Family School of Data Science & Artificial Intelligence, MFSDSAI, IIT Roorkee)

VISITING POSITIONS:

mm/yy-mm/yy

06/04-09/05	DAAD Research Fellow, Leipzig University, Germany
08/05 (3 weeks)	Visiting Scientist, Universite Montpellier II, France
12/07-02/08	Visiting Scientist, Tohoku University, Japan
06/10-06/12	JSPS Postdoctoral Fellow, Earthquake Research Institute (ERI), The University of Tokyo
10/12-03/14	Postdoctoral Researcher, ERI, The University of Tokyo
06/15-08/15	Visiting Scientist, ERI, The University of Tokyo
03/17-01/18	JSPS Invited Fellow, ERI, The University of Tokyo

TEACHING EXPERIENCE:

IIT Roorkee:

Digital Signal Processing (ESN-224)
Digital Image Processing (ESN-475, DA-430)
Essential Mathematics for AI and DS (AID-501)
Time Series Data Analysis (AID-555, DA-208)
Geophysical Prospecting (ESN-532)
Geophysical Prospecting (ESN-223)
Field Theory (ESN-221)
Advanced Techniques in Geophysical Exploration (ESN-577)

AcSIR, CSIR-NGRI:

Geophysical Signal Processing, Inverse Theory, and Seismology

SERVICE:

Member, Indian Antarctica Expedition, December 2000 - March 2001
Member, American Geophysical Union (AGU)
Member, Seismological Society of Japan (SSJ)
Member, Japan Geoscience Union (JpGU)
Member, CED-39, Earthquake engineering, Bureau of Indian Standards, New Delhi
Member, Indian Society of Earthquake Technology (ISET)
Reviewer, Journal of Geophysical Research (Solid Earth),
Bulletin of Seismological Society of America (BSSA),
Geophysical Journal International (GJI),
Physics of the Earth and Planetary Interiors (PEPI),
Geophysics, Tectonophysics, Journal of Seismology,
Journal of Earth System Sciences, Physica A,
Geosystems and Geo-environment,
PAMC Geosciences of MoES, New Delhi, among others
Ex-Professor, Academy of Scientific & Innovative Research (AcSIR), CSIR-NGRI
Reviewer, Doctoral Advisory Committee (DAC) of AcSIR, CSIR-NGRI
Associate Editor, ISET Journal of Earthquake Technology

AWARDS AND HONORS:

1. Recipient of **CSIR Young Scientist Award** in Earth Sciences from Govt. of India for the Year 2008
2. Recipient of **National Geosciences Award** in Applied Geophysics from Govt. of India for the Year 2014

Book-chapters

2020

1. **Padhy, S.** (2020). High-frequency seismology. In: Gupta H.K. (eds) Encyclopedia of Solid Earth Geophysics. *Encyclopedia of Earth Sciences Series*. Springer, Cham. https://doi.org/10.1007/978-3-030-10475-7_273-1.

2. **Padhy, S.,** Dimri, VP. (2020) Fractal scaling of earthquakes. In: Gupta H.K. (eds) Encyclopedia of Solid Earth Geophysics. *Encyclopedia of Earth Sciences Series*. Springer, Cham. https://doi.org/10.1007/978-3-030-10475-7_274-1

2016

1. **Padhy S.** (2016) The Multi-fractal Scaling Behavior of Seismograms Based on the Detrended Fluctuation Analysis. In: Dimri V. (eds) Fractal Solutions for Understanding Complex Systems in Earth Sciences. *Springer Earth System Sciences*. Springer, Cham. https://doi.org/10.1007/978-3-319-24675-8_7

Publications in International Journals:

2023

1. Subhadra, N., **Padhy, S.,** Srinagesh, D. (2023). Regional variability in ground motion amplitude in Western Himalaya. *Journal of Seismology* 27 (3), 455-471

2021

1. **Padhy, S,** Subhadra, N. (2021) Frequency dependence of attenuation components including mantle leakage in Garhwal Himalaya based on a modified MLTWA method. *Geophysical Journal International* 227 (3), 2156-2179
2. Akilan, A., **Padhy, S.,** Dimri, VP, et al. (2021) Co-seismic and Post-seismic Changes in ZTD and TEC of the 2015 Nepal Earthquake. *Pure and Applied Geophysics* 178 (9), 3339-3354

2020

1. Adimah, NI, **Padhy, S.** (2020). Depth dependent azimuthal anisotropy in Madagascar island from ambient noise tomography. *Tectonophysics* 789, 228513.
2. Kayal, JR., **Padhy, S.** (2020) Seismicity and structure of the Indian subcontinent. *Episodes Journal of International Geoscience* 43 (1), 650-664.
3. Adimah, NI., **Padhy, S.** (2020). Ambient noise Rayleigh wave tomography across the Madagascar island. *Geophysical Journal International* 220 (3), 1657-1676.
4. **Padhy, S.,** Dimri, VP. (2020). Apparent scaling of virus surface roughness – An example from the pandemic SARS-nCoV. *Physica D: Nonlinear Phenomena* 414, 132704

2019

1. Akilan, A., Abdul Azeez, K., Schuh, H., **Padhy, S.,** Kotluri, SK. (2019). Perturbations in atmospheric gaseous components over coastal Antarctica detected in GPS signals and its natural origin to volcanic eruption. *Polar Science*, 19, 69-76.

2018

1. Subhadra, N., **Padhy, S.**, Dimri, VP. (2018). Characterizing spatial heterogeneity based on the b-value and fractal analyses of the 2015 Nepal earthquake sequence. *Tectonophysics* 722, 154-162.
2. Subhadra, N., **Padhy, S.**, et al. (2018). Evaluation of site effects on ground motions based on response equivalent-linear site response analysis and liquefaction potential in Chennai, south India. *Journal of Seismology*, 22 (4), 1075-1093.
3. Subhadra, N., **Padhy, S.**, et al. (2018). Evaluation of ground motion and site-specific response spectrum for different parts of India by the method of semi-empirical Green's function. *Arabian Journal of Geosciences*, 11:255.
4. Akilan, A., Abdul Azeez, K., **Padhy, S.**, Schuh, H. (2018). Temporal changes in atmospheric water content during the December 2004 Sumatra earthquake as estimated from GPS signals and its possible connection to the January 2005 California flash flood. *Annals of Geophysics*, 61(1), SE102.
5. Boulanouar, A., El. Moudnib, L., **Padhy, S.**, et al. (2018). Estimation of coda wave attenuation in northern Morocco. *Pure and Applied Geophysics*, 175 (3), 883-897.

2016

1. Furumura, T., Kennett, BLN., **Padhy, S.** (2016). Enhanced waveguide effect for deep-focus earthquakes in the subducting Pacific slab produced by a metastable olivine wedge. *Journal of Geophysical Research: Solid Earth* 121 (9), 6779-6796.
2. **Padhy, S.**, Subhadra, N. (2016). Spectral scaling and seismic efficiency for earthquakes in northeast India. *Bulletin of the Seismological Society of America* 106 (4), 1613-1627.
3. Akilan, A., Azeez, KKA., Schuh, H., **Padhy, S.**, et al. (2016). Changes in atmospheric water content associated with an unusual high snowfall during June 2004 at Maitri station (Schirmacher Oasis, East Antarctica) and the role of South West Indian ridge geodynamics. *Natural Hazards* 83 (1), 563-574.
4. Akilan, A., Balaji, S., **Padhy, S.**, et al. (2016). The plate kinematics of Burmese micro-plate relative to its surroundings. *Arabian Journal of Geosciences* 9 (5), 333.

2015

1. Subhadra, N., **Padhy, S.**, Prasad, PP., Seshunarayana, T. (2015). Site specific ground motion simulation and seismic response analysis for microzonation of Nanded city, India. *Natural Hazards* 78 (2), 915-938.
2. **Padhy, S.**, Mishra, OP., Subhadra, N., Dimri, VP., Singh, OP., Chakraborty, GK. (2015). Effects of errors and biases on the scaling of earthquake spatial pattern: application to the 2004 Sumatra–Andaman sequence. *Natural Hazards* 77 (1), 75-96.

2014

1. **Padhy, S.,** Furumura, T., Maeda, T. (2014). Decoupling of Pacific subduction zone guided waves beneath central Japan: Evidence for thin slab. *Journal Geophysical Research (Solid Earth)*, 119 (11), 8478-8501.

2013

1. **Padhy, S.,** Subhadra, N (2013). Separation of intrinsic and scattering seismic wave attenuation in Northeast India. *Geophysical Journal International*, **195** (3), 1892-1903.
2. **Padhy, S.,** Takemura, S., Takemoto, T., Maeda, T., Furumura, T. (2013). Spatial and temporal variations in coda attenuation associated with the 2011 off the Pacific coast of Tohoku, Japan (Mw 9) earthquake. *Bulletin Seismological Society of America (Special Issue of the 2011 Tohoku-Oki earthquake, Japan)*, **103** (2B), 1411-1428.

2011

1. **Padhy, S.,** Subhadra, N., Kayal, JR. (2011). Frequency dependent attenuation of body and coda waves in the Andaman Sea basin, *Bulletin of the Seismological Society of America*, **101**, 109-125.
2. **Padhy, S.,** Mishra, OP., Zhao, D., Wei, W. (2011). Crustal heterogeneity in the 2007 Noto-Hanto earthquake area and its geodynamical implications, *Tectonophysics*, **509**, 55-68.
3. Furumura, T., Takemura, S., Noguchi, S., Takemoto, T., Maeda, T., Iwai, K., **Padhy, S.** (2011). Strong ground motions from the 2011 off-the Pacific-Coast-of-Tohoku, Japan (Mw=9.0) earthquake obtained from a dense nationwide seismic network, *Landslides*.

2010

1. **Padhy, S.,** Subhadra, N. (2010). Frequency dependent attenuation of P- and S-waves in the northeast India, *Geophysical Journal International*, **183**, 1052-1060.
2. **Padhy, S.,** Subhadra, N. (2010). Attenuation of high-frequency seismic waves in northeast India, *Geophysical Journal International*, 181, 453-467.

2009

1. **Padhy, S.** (2009). Inversion of seismogram envelopes using a multiple isotropic scattering model in Garhwal Himalaya. *Bulletin of the Seismological Society of America*, 99, 727-740.
2. **Padhy, S.** (2009). Characteristics of body wave attenuation in the Bhuj crust. *Bulletin of the Seismological Society of America*, 99, 3300-3313.

2007

1. **Padhy, S.,** Wegler, U., Korn, M. (2007). Seismogram Envelope Inversion using a multiple isotropic scattering model - Application to aftershocks of the 2001, Bhuj earthquake. *Bulletin of the Seismological Society of America*. **97**, 222-233.

2006

1. **Padhy, S.,** Crampin, S. (2006). High pore fluid pressures at Bhuj inferred from 90°-flips in shear wave polarizations. *Geophysical Journal International*, **164**, 370-376.

2005

1. **Padhy, S.** (2005). A Scattering model for seismic attenuation and its global applications. *Physics Earth Planetary Inter.* **148**, 1-12.

2004

1. **Padhy, S.** (2004). Intermittent Criticality on regional scale in Bhuj. *Geophysical Journal International*, **158**, 676-680.

2001

1. Mandal, P., **Padhy, S.**, et al. (2001). Aftershock activity and frequency dependent low coda-Qc in the epicentral region of the 1999 Chamoli earthquake of Mw 6.4. *Pure and Applied Geophysics*, **158**, 1719-1735.

Indian Journals

2005

1. **Padhy, S.** (2005). Rescaled range fractal analysis of a seismogram for identification of signals from an earthquake. *Current Science*, 87, 637-641.

2008

1. Subhadra, N., **Padhy, S.**, Sesunarayana, T., Vijayaraghavan, R. (2008). Synthesis of expected ground motion using Semi-empirical Green's Function approach and its comparison with observed accelerations in Garhwal Himalaya, *Indian Minerals (Special Issue)*, 61(3-4), 201-212.

2021

1. Dimri, V.P., **Padhy, S.**, et al. (2021). The observed thermal anomaly as an earthquake Precursor: A case study from the 1993 Latur earthquake prone area in Western India. *The Journal of Indian Geophysical Union* 25(4), 4-6, 2021.

2022

1. Malaimani, EC., Ravikumar, N., Rao, S., **Padhy, S.**, et al. (2022). Studies on seismotectonics and geodynamical processes between India and Antarctica: A review. *Geoscientific Investigations From the Indian Antarctic Program*, 138-159.

Under Review

1. Kumar, S. **Padhy, S.**, Kumar, N. Investigating 2D shear velocity structure beneath Garhwal Himalaya, Uttarakhand, India, using microtremor H/V spectral ratios and surface wave dispersion measurements. *Journal of Seismology* (Submitted after revision).
2. Kumar, S. **Padhy, S.**, Kumar, N. Near-surface 2D shear wave velocity structure beneath eastern Kumaon Himalaya, Uttarakhand, India from microtremor HVSR and surface wave analysis. *Pure and Applied Geophysics* (Under review).

3. **Padhy, S.** Seismic response of the Hi-net sites in Japan to incident teleseismic P-waves from the 2008 Wenchuan earthquake. *J. Geol. Soc. India* (Under review).
4. Singh, SP., **Padhy, S.**, Silwal, V. A high-resolution 3D shear velocity model for Cameroon using ambient noise tomography: Constraints from the CPSO algorithm. *Geophysical Journal International* (Submitted after revision).
5. **Padhy, S.** Attenuation mechanism in Bhuj estimated with a modified MLTWA approach – Effect of velocity gradient on coda envelopes. *Geophysical Journal International* (Under review).
6. Nicholas, IA., **Padhy, S.** Lithospheric discontinuities beneath Madagascar Island from auto-correlation of teleseismic events. *Journal of Seismology* (Under review).
7. Bhadani, V., Panigrahi, B., **Padhy, S.**, Srivastava, DC. Paleostress estimation from fault-slip observations; a critical evaluation of the three methods. *Journal of Earth System Science* (Under review).

ABSTRACTS (CONFERENCE PROCEEDINGS):

2024

1. **Padhy, S.** (2024). A theoretical model of scattering of seismic waves in a band-limited fractal medium. *National seminar on Natural Hazards & Build better for Risk Mitigation and 8th Annual convention on “Advances in Earthquake Science”*, March 28-29, 2024, CBRI, Roorkee.
2. **Padhy, S.**, Nicholas, IA. (2024). Lithospheric discontinuities beneath Madagascar Island from auto-correlation of teleseismic events. *8th International Conference On Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics (8ICRAGEE)*, December 11-14, 2024

2023

1. Singh, SP., **Padhy, S.** (2023). Crustal structure beneath the Cameroon volcanic line and surrounding area: Insights from Markov Chain Monte Carlo and evolutionary algorithm-based shear wave velocity inversion. AGU Conference held in December 2023, USA (S23C-0383).

2022

1. **Padhy, S.** (2022). Variation of Teleseismic P-Wave Spectra of the 2008 Wenchuan Earthquake Observed at Hi-net Seismic Array in Japan, 17th Symposium on Earthquake Engineering (17SEE), 17-19 November 2022, IIT Roorkee.

2021

1. **Padhy, S.**, Subhadra N. (2021). Evaluation of frequency-dependent attenuation mechanisms in Garhwal Himalaya based on a modified MLTWA for a layered model. *IAGA IASPEI JSA*, 21-27 August 2021, Hyderabad.

2. Subhadra, N., **Padhy, S.**, Martin, M., Gok, R., Mayeda, K. (2021). Apparent-stress scaling of the 2016 Kumamoto earthquake sequence in SW Japan from coda-derived source spectra. *IAGA IASPEI JSA*, 21-27 August 2021, Hyderabad.

2019

1. **Padhy, S.**, Dimri, VP. (2019). Multiscale multifractal analysis of earthquakes in the Himalayas: Insights into the dynamics of the system. *C2E2 Himalaya 2019, International workshop on climate change and extreme events in the Himalayan region*, IIT Mandi, India, 18-20 April, 2019.

2018

1. **Padhy, S.**, Furumura, T., Maeda, T. (2018). Strong scattering of seismic waves in back-arc beneath Okinawa Trough in Ryukyu subduction zone with implications for the source of rifting, *Meeting on Seismic wave scattering*, The University of Tokyo, Japan, 2018.
2. Dimri, VP., Padhi, S., **Padhy, S.**, Rangarajan, R. (2018). Evaluating fractal scaling behavior in groundwater level fluctuations in semi-confined aquifer in Punjab, North India, *AGU Fall Meeting Abstracts*, Washington, USA, 2018.

2017

1. **Padhy, S.**, Furumura, T. (2017). Modeling waveform anomaly across central Japan with scattered seismic waves as inferred from high-frequency simulations. *IASPEI Symposia*, August 2017, Kobe, Japan.
2. **Padhy, S.**, Furumura, T., Maeda, T. (2017). Waveform anomaly caused by strong attenuation in the crust and upper mantle in the Okinawa Trough region. *AGU Fall Meeting*, New Orleans, USA, December, 2017.

2016

1. **Padhy, S.**, Furumura, T. (2016). High-resolution Imaging of the Philippine Sea Plate subducting beneath Central Japan. *AGU Fall Meeting*, San Francisco, USA, December, 2016.

2015

1. **Padhy, S.**, Subhadra, N., Seshunarayana, T., Srinagesh, D. (2015). Site-specific ground-motion simulation and seismic response analysis in northeast and peninsular India. *International Symposium on Reducing Earthquake Losses and 4th Annual Convention on Advances in Earthquake Science*. Institute of Seismological Research, Gandhinagar, India, January 2015.

2013

1. **Padhy, S.**, Furumura, T., Maeda, T. (2013). Anti-waveguide effects in Pacific slab: evidence from high-frequency waveform analysis and numerical modeling. *CIG/QUEST/IRIS Joint workshop on seismic imaging of structure and source*, University of Alaska Fairbanks, July 14-17, 2013.

2. **Padhy, S.,** Furumura, T., Maeda, T. (2013). A split in the subducting Philippine Sea slab beneath the Izu-western Nankai collision zone – Implications for tear within the subducting slab. *Japan Geoscience Union Meeting*, Makuhari Messe, Tokyo, Japan, 19-24 May, 2013.
3. **Padhy, S.,** Furumura, T., Maeda, T. (2013). High-frequency shear wave propagation across the Honshu slab subducting beneath NE Japan. *Workshop on seismic wave scattering*, Earthquake Research Institute, The University of Tokyo, Japan, 09-10 July, 2013.
4. **Padhy, S.,** Furumura, T., Maeda, T. (2013). Decoupling of Pacific subduction zone guided waves beneath central Japan: Evidence for thin slab. *Seismological Society of Japan (SSJ) Fall Meeting*, Yokohama City, Japan, 7-9 October, 2013.
5. **Padhy, S.,** Furumura, T., Maeda, T. (2013). Lateral structural change of the subducting Pacific plate beneath Japan inferred from high-frequency body wave analysis. *IPGP-ERI Workshop on Imaging and monitoring active subduction zones and volcanoes II*, Earthquake Research Institute, The University of Tokyo, Japan, 11-13 March 2013.

2012

1. **Padhy, S.,** Furumura, T., Maeda, T., Takemura, S. (2012). Lateral structure beneath the Izu-Nankai collision zone: Implication of a plate split in the subducting Philippine slab. *Japan Geoscience Union Meeting*, May 22-27, 2012.
2. **Padhy, S.,** Furumura, T., Maeda, T. (2012). Anti-waveguide effects in Pacific slab: evidence from high-frequency waveform analysis and numerical modeling. *QUEST 3rd Workshop*, Slovak Republic, May 20-26, 2012.

2011

1. **Padhy, S.,** Furumura, T., Maeda, T. (2011). Lateral structural change of the subducting Pacific plate beneath Japan inferred from high-frequency body wave analysis. *AGU Fall Meeting*, San Francisco, 5-9 December, 2011.
2. **Padhy, S.,** Furumura, T., Maeda, T. (2011). Waveform effects of the thinning or tearing of the subducting Pacific slab beneath Japan. *Japan Geoscience Union Meeting*, May 22-27, 2011.
3. **Padhy, S.,** Furumura, T., Maeda, T. (2011). Lateral structure of the subducting Pacific plate beneath Japan inferred from high-frequency body wave analysis. *Imaging in Wave International workshop on Passive Physics: from Seismology to Ultrasound*, Corsica, France, May 09-13, 2011.
4. **Padhy, S.,** Takamura, S., Takemoto, T., Maeda, T., Furumura, T. (2011). Temporal changes in coda attenuation associated with the 2011 Off the Pacific Coast of Tohoku Earthquake. *AOGS*, Taipei, August 08-12, 2011.

5. **Padhy, S.,** Furumura, T., Maeda, T. (2011). Lateral structure of the subducting Pacific plate beneath Japan inferred from high-frequency body wave analysis. *AOGS*, Taipei, August 08-12, 2011.

2010

1. **Padhy, S.** (2010). Scattering and anelastic attenuation of seismic energy in northeast India using the multiple lapse time window analysis. *AGU Fall Meeting*, San Francisco, California, 13-17 Dec.
2. **Padhy, S.,** Subhadra, N. (2010). Attenuation characteristics of high-frequency seismic waves in Northeast India. *7th ACES International Workshop*, Otaru, Japan, October 3-8, 2010.
3. **Padhy, S.,** Dimri, VP. (2010). Fractal clustering of reservoir induced seismicity in the Koyna Warna reservoir area. *Chapman Conference on Complexity and Extreme Events in Geosciences*, CSIR-NGRI, Hyderabad, India, 15-19 February 2010.

2006

1. **Padhy, S.,** Crampin, S. (2006). Characteristics of shear wave polarizations in Garhwal Himalaya. *12th International Workshop on Seismic Anisotropy (12IWSA)*, Beijing, China, 22-27 October, 2006.

2005

1. **Padhy, S.,** Wegler, U., Korn, M. (2005). Scattering of seismic waves in the crust beneath Bhuj, NW India. *Workshop meeting on seismic waves in laterally inhomogeneous media VI, (SWLIM – VI)*, Hrubá Skála, Czech Republic, June 20-25, 2005.

2004

1. **Padhy, S.** (2004). Scaling of displacement spectra of Bhuj aftershocks. *AOGS*, 2004, Singapore, 57-ONL-A645.

2003

1. **Padhy, S.** (2003). Spectral decay parameter, κ in Bhuj. *IUGG, 2003, Sapporo, Japan* [SS01/01P/A09-012].

PROJECTS:

Completed:

1. Seismic hazard studies of Northeast and Peninsular India (Main Lab Project of CSIR-NGRI) (Role: Co-PI).
2. Evaluation of strong ground motions in the Indo-Gangetic Plains (Fast Track Project of CSIR) (Role: Co-PI).
3. Strong ground motion studies for the design of engineering structures (Nuclear Power Plants) (Sponsored Project by NPCIL) (Role: Co-PI).
4. Western India school earthquake lab programme (Funded by MoES) (Role: Co-PI).

5. Landslide potential of vatada hill due to seismic activity (Varsha Project sponsored by Ministry of Defence, GoI) (Role: Co-PI).
6. Seismic hazard analysis for Mumbai Trans Harbour Link (MTHL) (Sponsored by MMRDA, Govt. of Maharashtra) (Role: Co-PI).
7. Sandalwood estimate and oil analysis (Sponsored by Dharampal Satyapal Group) (Role: Co-PI).

Under review

1. Investigating subsurface scattering structure of the Moon near the Chandrayaan-3 landing site with seismic data set (Submitted to ISRO, Under review) (Role: PI; 50 Lakhs).
2. High resolution imaging of the crust and upper mantle beneath NW Himalaya by joint inversion of passive seismological data. India Austria Science and Technology Cooperation (Under review in DST, New Delhi)(Role: PI; 16 Lakhs).
3. Scattering of noise-correlated surface-wave coda waves in the heterogeneous structure of the Indo-Gangetic Plain (Under review in MoES, Govt. of India)(Role: PI; 70 Lakhs).

SUMMARY OF STUDENT ACTIVITIES:

Current Students Ph. D (Awarded) – 4
 Ph. D (Ongoing) – 3

1. Nampally Subhadra (Awarded by Osmania University)
 Title: “Attenuation Characteristics of body waves and computed ground motion in northeast India and adjoining areas”
 Role: Supervisor
2. A. Akilan (Awarded by Pondicherry University)
 Title: “Plate motion and seismo-tectonics in and around Indian Ocean using GPS-Geodesy”
 Role: Co-Supervisor
3. Nicholas Irabor Adimah (Awarded by AcSIR, CSIR-NGRI)
 Title: “Crust and uppermost mantle structure of the Madagascar Islands from ambient noise tomography”
 Role: Supervisor
4. Sanjay kumar (Awarded by IIT Roorkee)
 Title: “Investigating shallow sub-surface velocity and attenuation structure beneath Garhwal-Kumaon Himalaya”
 Role: Supervisor
5. Sahansra Tiwari (Ongoing in IIT Roorkee)
 Title: “Earthquake ground motion variability from 3-D numerical simulations of seismic wave propagation in northwest Himalayas”
 Role: Supervisor
6. Adityam Rai (Ongoing in IIT Roorkee)
 Title: “Monitoring of heterogeneous media using Passive Seismic Interferometry”
 Role: Supervisor
7. Arpit Maurya (Ongoing in IIT Roorkee)
 Title: “Broad-band earthquake ground motion modeling in north-west Himalayas”
 Role: Supervisor

M.Tech (AI/ DS) Dissertation Thesis:

- 1) Gaurav Ranjan
 Title: “Automated classification of seismic signals with Continuous Random Forests”
- 2) Banwari Lal Kumawat
 Title: “ML based Granger causality detection from observed time series”

- 3) Ravindra Samria
Title: “Denoising and restoration of cryo-EM images based on Weiner filtering”
- 4) Pilli Vishnuvardhan
Title: “Seismic waveform denoising with Generative Diffusion models”
- 5) Pratik P. Singh
Title: “Denoising of seismic signals using Deep Neural Networks”

Masters (B.Tech & Integrated M.Tech) Students – 28

(Simanchal Padhy)