Curriculum Vitae – Niptika Jana

Contact Information

Niptika Jana
DOB: 12/01/1991
Department of Applied Geophysics
Indian Institute of Technology (ISM) Dhanbad
Dhanbad, India-826004
Mobile: +91 9903080428
niptika.jana.1201@gmail.com
niptikaj@iitism.ac.in

About Me

I work in the field of Seismology and Geodynamics. My Ph.D. work comprised of investigating the lithospheric deformation patterns below the Eastern Ghats Mobile Belt using seismic anisotropic measurements from direct-S and core refracted phases (SKS, SKKS and PKS); and Surface Wave Dispersion measurements jointly inverted with Receiver Functions to decipher the lithospheric architecture.

I am also working on Local Earthquake Tomography in the Sikkim Himalaya, with an attempt to image the crustal velocity structure. My extended work includes study of the lithospheric structures and upper-mantle deformations below the Sikkim Himalayas and the north-eastern India using surface wave tomography and seismic anisotropy.

Currently I am a Visiting Assistant Professor at Indian Institute of Technology (Indian School of Mines) Dhanbad.

Present Status

Visiting Assistant Professor at Indian Institute of Technology (ISM) Dhanbad (August 2022- Present)

Courses Taught

Mathematical Functional Analysis (GPC504) Monsoon Semester 2022-2023
Earthquake statistics and Hazard (GPD520) Winter Semester 2022-2023
Computational Seismology (GPD522) Winter Semester 2022-2023

Administrative Load

Faculty Advisor- Geophysical Society, Department of Applied Geophysics, IIT (ISM) Dhanbad (August 2022- Present)

Academic Qualification

Ph.D. in Seismology from Indian Institute of Technology Kharagpur (2016-2022).
Title: **Lithospheric Architecture and Mantle Deformation of the Eastern Ghats Mobile Belt**.

M.Sc. (Tech.) in Applied Geophysics from Indian School of Mines, Dhanbad (2012-2015). Percentage/**Grade**: 8.39

B.Sc. (Hons.) in Physics from St. Xavier's College, Kolkata, Autonomous under Calcutta University (2009-2012). **Percentage**/Grade: 70.7

Research Experience

Project Associate, IIT Kharagpur, 2022
Senior Research Fellow, IIT Kharagpur, 2018-2021
Junior Research Fellow, IIT Kharagpur, 2016-2018
Project Research Fellow, IIT Kharagpur, 2016

Area of Specialisation

Seismic Anisotropy
Surface Wave Tomography
Local Earthquake Tomography
Seismicity

Journal Publications

Under Review/ Draft Under Preparation

Jana, N., Dubey, A. K., Singh, C., Kumar, M. R., Singh, A., Saikia, D., and Sarkar, S.: Crustal architecture delineated from shear velocity and radial anisotropic pattern across the northeastern India and eastern Tibetan plateau: an implication of crustal material flow, Tectonophys, under review.

Singh, C., Tiwari, A. K., Sandvol., E., Jaiswal, N., **Jana, N.,** and Bose, S.: Frequency dependent Lg and Pg wave attenuation in Western Tibet, draft under-preparation.

Jana, N., Singh, A., Singh, C., Kumar, G., Uthaman, M., and Dubey, A. K.: 3-D Crustal velocity structure of Sikkim Himalaya using double difference relocation and seismic tomography technique, draft under-preparation.

Published in Peer-Reviewed Journals

Jana, N., Singh, C., Singh, A., Eken, T., Dubey, A. K., Dutta, A., and Gupta, A. K.: Lithospheric architecture below the Eastern Ghats Mobile Belt and adjoining Archean Cratons: imprints of India-Antarctica collisional tectonics, Gondwana Research, 111, doi.org/10.1016/j.gr.2022.08.009 209-222.

Jaiswal, N., Singh, C., Sarkar, S., Tiwari, A. K., and **Jana, N.**: Pg attenuation tomography beneath western Tibet, Journal of Seismology, pp.1-13, doi.org/10.1007/s10950-022-10086-9, 2022.

Dubey, A. K., Singh, A., Kumar, M. R., **Jana, N.**, Sarkar, S., Saikia, D., and Singh, C.: Tomographic imaging of the plate geometry beneath the Arunachal Himalaya and Burmese Subduction zones, Geophysical Research Letters, e2022GL098331, doi.org/10.1029/2022GL098331, 2022.

Uthaman, M., Singh, C., Singh, A., **Jana, N.**, Dubey, A. K., Sarkar, S., and Tiwari, A. K.: Spatial and temporal variation of the ambient noise environment of the Sikkim Himalaya, Sci. Rep., 12, 224 doi:10.1038/s41598-021-04183-x, 2022.

Dutta, A., Biswas, R., Singh, C., Kumar, M. R., **Jana, N.**, and Singh, A.: Depth wise attenuation mechanism of seismic waves in the Andaman-Nicobar Island region, Soil Dynamics and Earthquake Engineering, 151, 107000 doi:10.1016/j.soildyn.2021.107000, 2021.

Jana, N., Singh, A., Tiwari, A. K., Eken, T., Singh, A., Singh, C., and Shankar, U.: Seismic anisotropy and mantle deformation beneath Eastern Ghats Mobile Belt using direct-S waves, Precambrian Research, 360, 106215, 10.1016/j.precamres.2021.106215, 2021.

Jana, N., Singh, A., Tiwari, A. K., Singh, C., and Biswas, R.: Mantle deformation patterns and signatures of rift, beneath Eastern Ghats Mobile Belt, Physics of the Earth and Planetary Interiors, 289, 20-33, 10.1016/j.pepi.2019.01.009, 2019.

Jana, N., Singh, C., Biswas, R., Grewal, N. and Singh, A.: Seismic noise analysis of broadband stations in the Eastern Ghat Mobile Belt of India using power spectral density. Geomatics, Natural Hazards and Risk, 8(2), 1622-1630, 10.1080/19475705.2017.1365777, 2017.

Conference Contributions

Jana, N., Singh, A., and Singh, C.: Lithospheric architecture and mantle deformational patterns below the Eastern Ghats Mobile Belt: an integrated seismological perspective, *IUGG General Assembly*, accepted abstract, July 2023.

Singh, C., Tiwari, A. K., Sandvol., E., Jaiswal, N., **Jana, N.,** and Bose, S.: Frequency dependent attenuation and relative site response of Western Tibet, *EGU General Assembly Conference Abstracts*, 2259, 2023.

Jana, N., Dubey, A. K, Singh, C., Kumar, M. R., Singh, A., Saikia, S., and Sarkar, S.: 3-D Shear wave velocity and radial anisotropy models of the northeast India and eastern Tibetan Plateau, *AGU Fall Meeting*, 2022.

Dubey, A. K, Singh, A., Kumar, M. R., **Jana, N.,** Sarkar, S., Saikia, S., and Singh, C.: 3D Imaging of the Upper Mantle Beneath Arunachal Himalaya and Burmese Subduction Zones, *AGU Fall Meeting*, 2022.

Uthaman, M., Singh, C., Singh, A., **Jana, N.,** Dubey, A. K., Sarkar, S., and Tiwari, A. K.: Spatio-temporal Variation of Ambient Noise in the Sikkim Himalaya, *AGU Fall Meeting*, 2022.

Singh, A., **Jana, N.,** Tiwari, A. K., Eken, T., Singh, A., and Singh, C.: Direct S-wave derived seismic anisotropy beneath Eastern Ghats Mobile Belt and adjacent Archean cratons: Signature of collision and rifting, *EGU General Assembly Conference Abstracts*, 21, 7234, 2019.

Jana, N., Singh, A., and Singh, C.: Surface Wave Dispersion Analysis in the Eastern Ghats Mobile Belts and Adjacent Archean Cratons and its implications on Lithospheric Velocity Models, *EGU General Assembly Conference Abstracts*, 21, 8476, 2019.

Jana, N., Singh, A., Tiwari, A. K., and Singh, C.: New Constraints on Seismic Anisotropy beneath the Eastern Ghats Mobile Belt and Adjacent Archean Cratons Contact Boundary, *SSA Annual Meeting Abstracts*, 2018.

GEOPHYSICAL FIELD EXPERIENCES

Extensive experience in seismological fieldwork encompassing site selection, station installation, maintenance, and data retrieval from 54 broadband seismic stations across Eastern Ghats Mobile Belt (India) and the Sikkim Himalayas (India) between the period 2016-2021.

COMPUTER SKILLS

Operating systems Advanced experience with the most flavors of Linux (openSUSE and Ubuntu) and Microsoft Windows.

Programming, scripting and markup languages Bash and Tcsh, SAC, SEISAN, GMT, Matlab, C++, and Fortran.

AWARDS & ACHIEVEMENTS

Joint-Secretary (2013-2014), SPG Student Chapter, Indian School of Mines, Dhanbad.

Student Editor for GEOS 2019 (Magazine) published by Department of Geology and Geophysics, Indian Institute of Technology Kharagpur.

PROFESSIONAL AFFILIATIONS

AGU, EGU & SSA.

LANGUAGE SKILLS

Fluent in **English, Bengali, Hindi**