



CURRICULUM VITAE

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ATIN KUMAR MITRA

Father's Name: Late Amiya Kumar Mitra (W.B.A.I.T.S)

D.O.B: 24th September 1978.

Nationality: Indian

Sex: Male

Marital Status: Married

ACADEMIC DETAILS

Ph.D (Science), from Jadavpur University in 2013.

M.Sc. in Applied Geology with 1st class from Jadavpur University in 2002

B.Sc. (Hons) in Geology with 1st class from Burdwan University in 2000

POSITIONS HELD:

Assistant Professor in the Dept. of Earth Sciences, IEST, Shibpur,
Howrah, W.B., India (29.10.2014 till date)

Assistant Professor in Geology in J. K. College, Purulia under
S. K. B. U. (21.08.2008 to 28.10.2014).

Senior Research Fellow (CSIR), Department of Geological Sciences,
Jadavpur University. (1.07.2005 -31.06.2008)

Junior Research Fellow (CSIR), Department of Geological Sciences,
Jadavpur University. (1.07.2003-31.06.2005)

Teaching Assistant: In field for post grad students from 2004-2008 in
Jadavpur University. Taking Eng. Geo classes (Theory and Practical) for
construction engineering for last two years (2006-2007).

RESEARCH PROJECTS: “Development of deformational structures in mobile belts:
a numerical and experimental study”, (2012) Sponsored by UGC.

GEOLOGICAL FIELD EXPERIENCE :-

- 1) Recognition of different geological features and rock types in complex geological terrains e.g. Chotanagpur Gneissic Complex, Singhbhum mobile belt, Parts of Himalaya (Sikkim and Arunachal Pradesh).
- 2) Geological mapping of sedimentary terrains and facies analysis in parts of Madhya Pradesh, Maharashtra, Rajasthan.

- 3) Structural mapping and analysis of small-scale and large-scale deformational structures in deformed terrains
- 4) Geological and structural mapping of terrains showing evidence of polyphase deformations; high-resolution structural mapping using plain paper techniques, interpretation of shear zone structures
- 5) Industrial field training in different mines (Coal, Uranium and Iron ore) and associated Beneficiation Plant at Jharkhand and Bihar.

RESEARCH EXPERIENCE

- 1) **M.Sc. Dissertation Topic:**
Repeated emplacements of pegmatites in granite gneiss: A field investigation (Duration of the work **2000-2002**)
 The work involves the repeated emplacement of different generation pegmatites and their subsequent deformation in Chhotanagpur Gneissic Complex. A number of detailed plain paper maps were prepared in the scale of 1: 100, where different structural elements were plotted very precisely. From the structural mapping it is revealed that the rocks have suffered multi phase deformation and emplacement of pegmatite began right from the earliest phase of deformation and continued up to the late phase. Pegmatites are emplaced along fractures indicating brittle deformation again structural map is showing that the brittle deformation is followed by a ductile deformation, and this phenomenon occurs repeatedly a schematic model is proposed to explain this brittle to ductile transition.
- 2) **Ph.D Topic:**
“Kinematics and development of deformational Structures in the North Singhbhum Proterozoic mobile belt: a theoretical and experimental investigation”. The study is proposed to investigate the deformation kinematics in the North Singhbhum Proterozoic mobile belt, which is sandwiched between Singhbhum Granite Craton (SGC) in the south and Chotanagpur Granite Gneissic Complex (CGC) in the north. The mobile belt describes a strongly arcuate geometry convexing in the north direction, and is characterized by a structural heterogeneity reflecting spatial and temporal variations in the strain field during the N-S regional tectonic movement. Using a suitable continuum models this study aims at characterizing the nature of strain heterogeneity in the mobile belt of arcuate geometry. The rocks are exposed in different parts of the belt showing signatures of overprinting structural fabrics, which clearly indicate that the strain field changed temporally. With the help of physical and numerical modeling (**ANSYS v 11**) the proposed study also attempts to show the necessary boundary conditions in a mobile belt that can lead to such a temporal variation in the strain field. Presently Working on Finite Element Modelling of Geological Structures using (**ANSYS v 11**), the study also includes a good number of analogue experiments which need handling of rock deformation apparatus.

Supervision of Research Work:

PhD:

1. Sharmistha Paul, Ph.D. awarded 2025 – “Palaeosynecology of continental molluscan fossils in the intertrappean rocks of Madhya Pradesh, India- A multifaceted approach”
2. Uddalak Biswas, Ph.D. awarded 2024 - “Deformation assisted fluid flow in different geological settings”
3. Puja Chowdhury, Ph.D. awarded 2024- “Study on the suitability of groundwater for drinking and irrigation purposes in the granite-gneissic terrain of Eastern blocks of Purulia district, West Bengal, India”

4. Nandini Choudhury (SRF), Year of joining: 2019 - “Kinematics of Curvilinear/Arcuate shear zone and its implications on Singhbhum Shear Zone”
5. Anjitha K. (SRF), Year of joining: 2023 – “Occurrences of Light Elements in Terrestrial Planets Under Extreme Conditions: A First Principles Study”
6. Juhi Rani (JRF), Year of joining 2025

M. Sc. Thesis

50 (Completed), 7 (Ongoing)

INDUSTRIAL EXPERIENCE

- 1) Taking part in the Geological interpretation for DIBBIN Hydro Electric Project in Arunachal Pradesh on behalf of INTEGRITY GEOSCIENCES PVT. LTD.
- 2) Taking part in the programme of ‘Geological and Structural Mapping in Block : AA-ONN-2003/2 in Changlong District, Arunachal Pradesh’ of M/s GEOPETROL INTERNATIONAL INC, New Delhi on behalf of INTEGRITY OIL SERVICES PVT. LTD. And prepared structural map.
- 3) Taking part in the geological field work for CBM exploration in Shahdol, Madhya Pradesh on behalf of INTEGRITY OIL SERVICES PVT. LTD. And prepared geological map.
- 4) Taking part in the geological field study and reserve estimation for building material in Indrabil, near Purulia-Bankura border, West Bengal for LAFARGE. And prepared geological map.
- 5) Taking part in the programme of ‘Geological and Structural Mapping In Block VII-A, REPUBLIC OF GEORGIA, in LESSER CAUCASUS, for JINDAL PETROLIUM in collaboration with JADAVPUR UNIVERSITY.
- 6) Taking part as consultant geologist in preparing feasibility report on a geothermal power project in Kenya, Africa with TCE (TATA Consulting Engineers Ltd.)

ACCHIEVMENTS:

- 1) **National Merit Scholarship Award for securing 3rd position in Burdwan University in B.Sc (Hons) Exam**
- 2) **Qualified CSIR-UGC NET JRF December 2002 Exam**
- 3) **Qualified CSIR-UGC NET JRF June 2003 Exam**
- 4) **Qualified CSC(College Service Commission, W.B.)(Date of Interview 26.11.07)**

PUBLICATION

- 1) “Is the outcrop topology of dolerite dikes of the Precambrian Singhbhum Craton fractal?” : Nibir Mandal, **Atin Kumar Mitra**, Santanu Misra and Chandan Chakraborty: Journal of Earth System Science, Vol 115, No. 6, December 2006, pp. 643-660. <https://doi.org/10.1007/s12040-006-0002-2>

- 2) “Repeated Emplacement of Syntectonic Pegmatites in Precambrian Granite Gneisses: Indication of Pulsating Brittle-Ductile Rheological Transitions” : M. Y. Mahmoud, **A. K. Mitra**, R. Dhar, S. Sarkar and N. Mandal. INDIAN DYKES: Geochemistry, Geophysics and Geochronology. (Ed) Rajesh K. Srivastava, Ch. Sivaji and N. V. Chalapathi Rao. Narosa Publishing House Pvt. Ltd., New Delhi, India. 2008, pp. 495-510.
- 3) “Orogenic Processes in Collisional Tectonics with Special Reference to the Himalayan Mountain Chain: A Review of Theoretical and Experimental Models”: Nibir Mandal, **Atin Kumar Mitra** and Santanu Bose. Physics and Chemistry of the Earth’s Interior Crust, Mantle and Core, Indian National Science Academy A Platinum Jubilee Special Issue, (Ed) Alok K. Gupta and Somnath Dasgupta. Springer. 2009, pp. 41-65. https://doi.org/10.1007/978-1-4419-0346-4_3
- 4) Numerical estimation of the initial hinge-line irregularity required for the development of sheath folds: A pure shear model: Nibir Mandal, **Atin Kumar Mitra**, Shamik Sarkar, Chandan Chakraborty, Journal of Structural Geology 31 (2009) 1161–1173. <https://doi.org/10.1016/j.jsg.2009.06.013>
- 5) “Spatial and Temporal Variations of the Strain Fields in Orogenic Belts: An Analysis Based on Kinematic Models”: **Atin Kumar Mitra**, Manhal Mahmoud, Shamik Sarkar, Nibir Mandal. Numerical Methods and Models in Earth Science, (Ed) Parthasarathi Ghosh. NEW INDIA PUBLISHING AGENCY, New Delhi. 2011, pp. 43-68.
- 6) “Lake Configuration and Change Detection Studies using Remote Sensing and GIS Techniques: A Study on Bogakine Lake, Bandarban, Bangladesh”: Biswajit Nath, Shukla Acharjee and **Atin Kumar Mitra**. International Journal of Lakes and Rivers. ISSN 0973-4570, Volume 5, Number 2 (2012), pp. 75-89
- 7) “A Geospatial Approach to determine Lake depth and Configuration of Reingkhongkine (Pukur Para) Lake, Rangamati Hill District, Bangladesh with Multi-Temporal Satellite data”: Biswajit Nath, Shukla Acharjee, **Atin Kumar Mitra** and Debabrata Majumder. (Accepted in Journal of Environmental Accounting and Management 3(3) (2015) PP. 147-257; Accepted 18 August 2015; Available online 1 September 2015; ISSN 2325-6192, eISSN 2325-6206; L&H Scientific Publishing,; DOI:10.5890/JEAM.2015.09.004
- 8) “Observation of short-term variations in the clay minerals ratio after the 2015 Chile great earthquake (8.3 Mw) Using Landsat 8 OLI Data”: B. Nath, Z. Niu and A. K. Mitra. *J. Earth Syst. Sci.* (2019) 128:117, Issue 5, <https://doi.org/10.1007/s12040-019-1129-2>.
- 9) “Development of tectonic fabrics in rocks: a theoretical and experimental investigation”; Sinha. S., **Mitra. A. K** and Manda. N (2018). Rock Deformation and Structures Conference (RDS-V)
- 10) “Development of buckle folds in shear zones: a field and experimental study”; Roy. N; Choudhury. N; **Mitra. A.K** and Mandal. N (2018). Rock Deformation and Structures Conference (RDS-V)
- 11) “Tectonic relaxation and the development of cross fold in the Singhbhum Proterozoic mobile belt: Insights from physical and numerical model experiments.” : Saha, P., **Mitra, A. K** and Mandal, N (2020). EGU General Assembly. Page. 1047.

- 12) “Structural control on the occurrence of groundwater in granite gneissic terrain, Purulia, West Bengal”; Nayak, S., Mukhopadhyay, B. P., **Mitra, A. K** and Chakraborty, R. (2020). Arabian Journal of Geosciences. 13: 955. <https://doi.org/10.1007/s12517-020-05853-2>.
- 13) “Study on the Quality of Groundwater and its Impact on Human Health: A Case Study from Murshidabad District, West Bengal”; Mukhopadhyay, B. P., Barua, S., Bera, A., and **Mitra, A. K.** *J Geol Soc India* **96**, 597–602 (2020). <https://doi.org/10.1007/s12594-020-1608-8>
- 14) “Observing tectonic-geomorphological changes along the Dawki Fault and adjoining areas of Sylhet, Bangladesh from 1980 to 2020 using remote sensing and GIS techniques” : Nath, B., Choudhury, N., & **Mitra, A. K.** (2022). Journal of Earth System Science (2022), Volume-131, Issue-3, Article no. 160 [I.F.- 2.0] <https://doi.org/10.1007/s12040-022-01900-6>
- 15) “Active Tectonism in and around Dawki Fault region and the significance of Dawki Fault in the exhumation process of Shillong Plateau pop-up structure: an analytical and experimental study.” Choudhury, N., Tanty, M. K., Nath, B., **Mitra, A. K.** (2022). In National conference on Rock Deformation and Structures VII (RDS–VII), October 2022.
- 16) Biswas, U., **Mitra, A. K.**, & Mandal, N. (2023). Emplacement mechanisms of pegmatites in the Chotonagpur Granite Gneiss Complex, Eastern India: insights from laboratory experiments. In EGU General Assembly Conference Abstracts. https://ui.adsabs.harvard.edu/link_gateway/2020EGUGA..22..989M/doi:10.5194/egusphere-egu2020-989
- 17) Choudhury, N., **Mitra, A. K.**, Mandal, N. (2023). Formation of Shear Bands in Foliated Granitic Rocks: A Field-based Analysis. In the 20th Annual Meeting of the Asia Oceania Geosciences Society (AOGS 2023).
- 18) Factors Controlling the Mud Crack Patterns: Insights from Analogue Experiments. Biswas, U., **Mitra, A. K.**, & Mandal, N. (2023). In the 20th Annual Meeting of the Asia Oceania Geosciences Society (AOGS 2023).
- 19) Wall Fracturing Versus Mechanical Instability as Competing Intrusion Mechanisms of Dikes: Insights From Laboratory Experiments. Biswas, U., **Mitra, A. K.**, & Mandal, N. (2023). Journal of Geophysical Research: Solid Earth, 128(9), e2023JB026921. <https://doi.org/10.1029/2023JB026921>
- 20) Geometrical Patterns of Dikes as an Indicator of Their Emplacement Mechanisms: Insights from a Laboratory Experiment : Biswas, U., **Mitra, A. K.**, & Mandal, N. AGU23.
- 21) Changes Observed in Land Surface and Air Temperature after the Yushu (China) (6.9 Mw) and Kaikura (New Zealand) (7.8 Mw) Earthquakes Using Landsat Thermal and Geophysical Datasets: Nath, B., Zhao, W., Niu, Z., Wang, L., Xu, S., Acharjee, S. & **Mitra, A. K.** <https://doi.org/10.1007/s12040-024-02441-w>
- 22) Lineament extraction and structural mapping using Landsat-9 OLI and Sentinel-1 SAR data in the Proterozoic North Singhbhum Mobile Belt, Eastern India. Choudhury, N., **Mitra, A.K.**, Nath, B. and Lindsay, M.D., 2025. Geosystems and Geoenvironment, 4(3), p.100392. (<https://doi.org/10.1016/j.geogeo.2025.100392>).

- 23) Boundary curvature as a first-order control on strain localization in arcuate shear zone: Insights from field observations, analogue and numerical modelling: Choudhury, N., Guha, S., Lindsay, M.D. and **Mitra, A.K.**, 2025. Journal of Structural Geology, p.105557.
<https://doi.org/10.1016/j.jsg.2025.105557>

PARTICIPATION IN CONFERENCE

1. Participated in a Discussion meeting entitled “**Structure and Evolution of the Lithosphere**” held in Coorg, Bangalore from 19th February to 22nd February, 2007, and the meeting was sponsored by DST.
2. Actively participated in the **International Conference on Geology, Indian Scenario and Global Context** held in ISI, Kolkata from 7th January to 11th January, 2008.
3. Participated in the National Conference on **ROCK DEFORMATION & STRUCTURES (RDS-I)** held in Jadavpur University (Kolkata) from 29th -31st October 2010.

PARTICIPATION IN WORKSHOP

1. Participated in Workshop entitled “**Physics and Chemistry of the Earth**” held at NATIONAL CENTRE OF EXPERIMENTAL MINERALOGY AND PETROLOGY, Allahabad, during 17th January to 29th January, 2005, and the workshop was sponsored by DST.
2. Participated in National Workshop on “**Aspects of Neotectonics**” from 27th March to 28th March, 2007 held in Calcutta University, Calcutta. The Workshop was sponsored by 150 year Celebration of University of Calcutta.

PARTICIPATION IN SEMINAR

1. Participated in UGC Sponsored State Level Seminar on “**GLOBAL WARMING: CLIMATE AND SUSTAINABLE DEVELOPMENT**”. Organized by Department of Geography, Sundarban Mahavidyalaya In collaboration with The Zoological Survey of India, Govt. of India on 21st January, 2011.

PARTICIPATION IN REFRESHER COURSE

1. Participated in the Refresher Course in the Subject “**Disaster Management**” from 2nd March to 22nd March, 2010 in UGC-ACADEMIC STAFF COLLEGE, JADAVPUR UNIVERSITY.

PARTICIPATION IN ORIENTATION PROGRAMME

1. Participated in the **Orientation Programme** for Academic Administrators/College and University Teachers & Librarians from 22nd November to 20th December, 2010 in UGC-ACADEMIC STAFF COLLEGE, JADAVPUR UNIVERSITY.

Avin Kumar Hritam