



## Faculty Details proforma for DU Web-site

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Title	Dr.	First Name	Anupam	Last Name	Chattopadhyay	Photograph
Designation		Professor				
Address		Dept. of Geology, 34, Chhatra Marg, University of Delhi (North Campus), Delhi 110 007.				
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Educational Qualifications						
Degree						Year
Ph.D.		Jadavpur University				1999
M.Phil. / M.Tech.						
PG		Jadavpur University				1990
UG		Jadavpur University, Kolkata				1987
Any other qualification						

### Career Profile

Geological Survey of India	Geologist	8 years	Scientific research work and related administration
University of Delhi	Reader	3 years	Teaching and Research, Research guidance
University of Delhi	Associate Professor	3 years	- do-
University of Delhi	Professor	9 years	- do-

### Administrative Assignments

- 1) Member, Board of Research Studies (Science), University of Delhi: 2005-2007, 2015-17, 2019-
- 2) Member, Faculty of Science, University of Delhi: 2009-2012, 2017-till date
- 3) Served on various administrative committees of the Dept. of Geology, including Committee of Courses, Departmental Research Committee, Admission committee etc. and actively participated in syllabus revision as the Convenor, Syllabus Revision Committee.
- 4) Appointed as Officiating Head of the Department during May-July 2017.

### Areas of Interest / Specialization

**Structural Geology:** Precambrian fold-thrust belts, Fault reactivation, Analog modeling of structures, Fault-related seismicity.

### Subjects Taught

- 1) **Structural Geology & Tectonics:** B.Sc. III Semester (old), Integrated B.Sc. (Hons) Geology-M.Sc. Geology III Semester, B.Sc. (Hons) Geology (CBCS)- II Sem.
- 2) **Deformation, Rheology and Tectonics:** M. Sc. (Integrated) Earth Sc. VII Semester
- 3) **Structural geology:** M.Sc. I Semester
- 4) **Precambrian geology of India:** M.Sc. II (old course)
- 5) **Earthquake Geology and Seismotectonics:** Integrated B.Sc. (Hons) Geology-M.Sc. Geology X<sup>th</sup> Semester

## Research Guidance

List against each head (If applicable)

1. Supervision of awarded Doctoral Thesis: **Five**
2. Supervision of Doctoral Thesis, under progress: **Three**
3. Supervision of awarded M.Phil dissertations: **One**
4. Supervision of M.Phil dissertations, under progress:

## Publications Profile

### A. Papers in Referred Journals (Peer-reviewed):

1. Sarkar, A., **Chattopadhyay, A.**, Singh, T. (2019) Roundness of survivor clasts as a discriminator for melting and crushing origin of fault rocks: a reappraisal. *Journal of Earth System Science* (In Press) (<https://doi.org/10.1007/s12040-019-1072-2>).
2. Ghosh, N., Hatui, K, **Chattopadhyay, A.** (2019) Propagation and coalescence of en-echelon cracks under a far-field tensile stress regime: an experimental study. *Journal of Earth System Science* 128:23; (<https://doi.org/10.1007/s12040-018-1056-7>)
3. Mishra, B. K., Bhattacharjee, D., **Chattopadhyay, A.**, Prusty, G. (2018) Tectonic and lithologic control over landslide activity within the Larji–Kullu Tectonic Window in the Higher Himalayas of India. *Natural Hazards* 92, 673-697; (doi: <https://doi.org/10.1007/s11069-018-3219-x>)
4. **Chattopadhyay, A.**, Chatterjee, A., Das, K., Sarkar, A. (2017) Neoproterozoic transpression and granite magmatism in the Gavilgarh-Tan Shear Zone, central India: Tectonic significance of U-Pb zircon and U-Th- total Pb monazite ages. *Journal of Asian Earth Sciences* 147, 485-501.
5. Bhattacharjee, D., Jain, V., **Chattopadhyay, A.**, Biswas, R. H., Singhvi, A. K. (2016) Geomorphic evidence and chronology of multiple neotectonic events in a cratonic area: results from Gavilgarh Fault Zone, central India. *Tectonophysics* 677-678, 199-217.
6. **Chattopadhyay, A.** (2015) Discussion on: "Carbon and oxygen isotope systematic of a Paleoproterozoic cap-carbonate sequence from the Sausar Group, central India by S. Mohanty, A. Barik, S. Sarangi and A. Sarkar" *Palaeogeography, Palaeoclimatology, Palaeoecology* 433, 156-157.
7. **Chattopadhyay, A.**, Das, K., Hayasaka, Y., Sarkar, A. (2015) Syn- and post-tectonic granite plutonism in the Sausar Fold Belt, central India: Age constraints and tectonic implications. *Journal of Asian Earth Sciences* 107, 110-121. (doi: <http://dx.doi.org/10.1016/j.jseaes.2015.04.006>)
8. **Chattopadhyay, A.**, Jain M. and Bhattacharjee, D. (2014) Three dimensional geometry of thrust surfaces and the origin of sinuous thrust traces in orogenic belts: insights from scaled sandbox experiments. *Journal of Structural Geology* 69, 122-137. doi: <http://dx.doi.org/10.1016/j.jsg.2014.09.020>.
9. **Chattopadhyay, A.**, Bhattacharjee, D. and Mukherjee, S. (2014) Structure of pseudotachylyte vein systems as a key to co-seismic rupture dynamics: the case of Gavilgarh-Tan shear zone, central India.

10. Deol, S., **Chattopadhyay, A.** and Deb, M. (2014) Deformation and metamorphism of gold-sulphide lodes in the Bhukia-Jagpura gold prospect, Rajasthan: Implications for ore genesis. *Journal of Earth System Science*, 123/1 (February 2014), 1-13.
11. Ghosh, N., Chakra, M. and **Chattopadhyay, A.** (2014) An experimental approach to strain pattern and folding in unconfined and/or partitioned transpressional deformation. *International Journal of Earth Sciences (Geol. Rundsch.)*, 103, 349-365.
12. **Chattopadhyay, A.** and Chakra, M. (2013) Influence of pre-existing fabrics on fault patterns during orthogonal and oblique rifting: an experimental approach. *Marine and Petroleum Geology* 39, 74-91.
13. Mandal, N., **Chattopadhyay, A.**, Srivastava, H.B., Biswal, T. K. and Bose, S. (2012) Brittle and ductile deformational structures in tectonic zones: the research trends in India. *Proceedings of the Indian National Science Academy (PINS A)* 78, 373-384.
14. Bhowmik, S.K., **Chattopadhyay, A.**, Gupta, S. and Dasgupta, S. (2012) Proterozoic tectonics: an Indian perspective. *Proceedings of the Indian National Science Academy (PINS A)* 78, 385-391.
15. **Chattopadhyay, A.** and Khasdeo, L. (2011) Structural Evolution of Gavilgarh-Tan shear zone, central India: A possible case of partitioned transpression during Mesoproterozoic oblique collision within the Central Indian Tectonic Zone. *Precambrian Research* 186, 70-88.
16. **Chattopadhyay, A.** (2011) Contrasting tail-geometry around K-feldspar porphyroclasts in granite-mylonite, central India (photo-of-the-month). *Journal of Structural Geology* 33, p.423.
17. **Chattopadhyay, A.**, Holdsworth, R.E., McCaffrey, K.J.W. and Wilson, R.W. (2010) Recording and analyzing geospatially accurate structural data through 'Digital Mapping' technique: a case study from the Canisp Shear Zone, NW Scotland. In: *M. A. Mamtani (Ed.) Structural Geology: from Classical to Modern Concepts. Spl. Issue, Journal of Geological Society of India*, 75, 43-59.
18. **Chattopadhyay, A.** and Holdsworth, R. E. (2009) Photo-of-the-month: Ductilely deformed pseudotachylite layer in sheared granite of Gavilgarh-Tan Shear Zone, central India. *Journal of Structural Geology* 31, p. 353.
19. **Chattopadhyay, A.**, Khasdeo, L., Holdsworth, R. E. and Smith, S. A. F. (2008) Fault reactivation and pseudotachylite generation in the semi-brittle and brittle regimes: Examples from Gavilgarh-Tan shear zone, central India. *Geological Magazine* 145(6), pp. 766-777.
20. Ghosh, N. and **Chattopadhyay, A.** (2008) The initiation and linkage of surface fractures above a buried strike-slip fault: an experimental approach. *Jour. Earth Syst. Sci.* 117, 23-32.
21. **Chattopadhyay, A.** and Ghosh, N. (2007) Polyphase deformation and garnet growth in pelitic schists of Sausar Group in Ramtek area, Maharashtra, India: A study of porphyroblast-matrix relationship. *Jour. Earth Syst. Sci.* 116, 423-432.
22. Roy, Abhijit, Kagami, H., Yoshida, M., Roy, A., Bandyopadhyay, B.K., **Chattopadhyay, A.**, Khan, A.S., Huin, A. K. and Pal, T. (2006) Rb-Sr and Sm-Nd dating of different metamorphic events in Sausar Mobile Belt, Central India: implications for Proterozoic crustal evolution. *Jour. Asian Earth Sci.* 26, 61-76.
23. **Chattopadhyay, A.**, Huin, A.K. and Khan, A.S. (2003) Structural framework of Deolapar area, central India and its implications for Proterozoic nappe tectonics: [Reply to comments](#). *Gondwana Research*

*Newsletter*, 6, 936-937.

24. **Chattopadhyay, A.**, Khan, A.S., Huin, A.K. and Bandyopadhyay, B. K. (2003) Reinterpretation of stratigraphy and structure of Sausar Group in Ramtek-Mansar-Kandri area, Maharashtra, central India: [Reply to comments](#). *Jour. Geol. Soc. Ind.* 61, 743-747.
25. **Chattopadhyay, A.**, Huin, A.K. and Khan, A.S. (2003) Structural framework of Deolapar area, central India and its implications for Proterozoic nappe tectonics. *Gondwana Research*, 6, 107-117.
26. **Chattopadhyay, A.**, Khan, A.S., Huin, A.K. and Bandyopadhyay, B. K. (2003) Reinterpretation of stratigraphy and structure of Sausar Group in Ramtek-Mansar-Kandri area, Maharashtra, central India. *Jour. Geol. Soc. Ind.*, 61, 75-89.
27. **Chattopadhyay, A.** and Mandal, N. (2002). Progressive changes in strain patterns and fold styles in a deforming ductile orogenic wedge: an experimental study. *Jour. Geodynamics*, 33, 353-376.
28. Kano, T., Yoshida, M., Wada, H., Satish Kumar, M., Roy, A., Bandyopadhyay, B.K., Khan, A.S., Pal, T., Huin, A.K., Bhowmik, S.K. and **Chattopadhyay, A.** (2001) Field studies in the Sakoli and Sausar Belts of the Central Indian tectonic Zone. *Jour. Geosci., Osaka City University*, 44, 17-39, Japan

**B. Papers/Articles in Special Publications/Books (Peer-reviewed):**

29. Mukherjee, I., **Chattopadhyay, A.**, Deb M. (2018) Deformation of pyrite at varying metamorphic grades in sediment-hosted base metal sulphide deposits of Rajasthan, India. In: Mandal, M.E.A. (Ed.) Precambrian Crustal Evolution of India: Geological and Geodynamic Perspective. Springer (SES series) – Springer Nature; 221-238.
30. Bergh, S.G., Corfu, F., Myhre, P. I., Kullerud, K., Armitage, P.B.E., Zwaan, K. B., Ravna, E.K., Holdsworth, R.E., **Chattopadhyay, A.** (2012). Was the Precambrian Basement of Western Troms and Lofoten-Vesterålen in Northern Norway Linked to the Lewisian of Scotland? A Comparison of Crustal Components, Tectonic Evolution and Amalgamation History. In: Sharkov, E. (Ed.) *Tectonics - Recent Advances*, ISBN: 978-953-51-0675-3, InTech, Netherlands: <http://www.intechopen.com/books/tectonics-recent-advances>
31. **Chattopadhyay, A.** (2010) A review of the structural Characteristics of orogenic gold deposits, with special reference to Indian gold fields. In: *Deb, M. and Goldfarb, R. J. (Eds.) Gold Metallogeny: India and beyond. Alpha Science, Oxford & Narosa Publ. New Delhi*; pp. 123-153.
32. Deol, S., Deb, M. and **Chattopadhyay, A.** (2010) Bhukia-Jagpura gold prospect: a preferred genetic model. In: *Deb, M. and Goldfarb, R. J. (Eds.) Gold Metallogeny: India and beyond. Alpha Science, Oxford & Narosa Publ. New Delhi*; pp. 234-255.
33. **Chattopadhyay, A.** and Bandyopadhyay, B. K. (2004) Fold-thrust tectonics of the Sausar Fold belt and its bearing on the adjacent high pressure metamorphic rocks. In: *Uniformitarianism revisited: comparison between ancient and modern orogens of India (IGCP-453). Geological Survey of India Special Publication # 84*, 319-330.
34. Deb, M. and **Chattopadhyay, A.** (2004). Westward extension of Central Indian Tectonic Zone into Aravalli-Delhi Orogenic Belt: a refinement of the earlier views. In: *Uniformitarianism revisited: comparison between ancient and modern orogens of India (IGCP-453). Geological. Survey of India Special Publication # 84*, 341-350
35. **Chattopadhyay, A.**, Bandyopadhyay, B. K. and Khan, A.S. (2001) Geology and Structure of the Sausar Fold Belt: A retrospection and some new thoughts. *Geological. Survey of India Special Publication# 64*,

p.251-263.

36. Mandal, N., **Chattopadhyay, A.** and Bose, S. (1997). Imbricate thrust spacing: experimental and theoretical analyses. In: S. Sengupta (Ed.) *Evolution of Geologic Structures in Macro- to Micro-scale. Chapman and Hall, London.* 143-165.

#### **C. Abstracts/Posters/Presentations in Symposia**

1. **Chattopadhyay, A.** (2016) Digital mapping on a GIS platform: is it the future of geoscience fieldwork? (Plenary Talk at the conference on 'Developments in Geosciences in the past decade – emerging trends for the future and impact on society' and AGM, Geological Society of India: Indian Institute of Technology, Kharagpur, 21-23 October 2016)
2. **Chattopadhyay, A.** (2016) Neoproterozoic transpression and polyphase fault reactivation in Gavilgarh-Tan shear zone: Implications for the tectonic evolution of central Indian craton (Abstract and presentation in 35<sup>th</sup> International Geological Congress, Session T33, Cape Town, S Africa).
3. Sarkar, A. and **Chattopadhyay, A.** (2016) Microstructural and chemical heterogeneity of pseudotachylytes from Indian craton, and its implications for frictional melting process along seismic faults (Abstract and presentation in 35th International Geological Congress, Session T43, Cape Town, S Africa).
4. Bhattacharjee, D., **Chattopadhyay, A.**, Jain, V. (2014) Polyphase neotectonic movements in the Gavilgarh Fault Zone, central Indian craton: evidences from geomorpho-tectonic analysis. Annual Meeting of the European Geosciences Union (EGU) General Assembly, Vienna, Austria.
5. **Chattopadhyay, A.**, Holdsworth, R.E., Sherlock, S.C., Widdowson, M. (2014) Constraining the ages of polyphase fault reactivation of the Gavilgarh-Tan Shear Zone, central India using laserprobe<sup>40</sup>Ar-<sup>39</sup>Ar dating of pseudotachylytes. Tectonics Studies Group Meeting, Cardiff, UK.
6. **Chattopadhyay, A.**, Tripathi, S. (2013). Electron Microscopy of pseudotachylyte: characterizing ultrafine textural features in seismic fault-zone rocks. Electron Microscopy Society of India Annual Conference, Kolkata.
7. **Chattopadhyay, A.**, Holdsworth, R.E., Kontak, D.J., Sherlock, S.C., Widdowson, M., Petrus, J. (2012) Neoproterozoic partitioned transpression and subsequent polyphase fault reactivation in Gavilgarh-Tan Shear Zone, central India: implications for Rodinia and Gondwana supercontinents. Gondwana-Asia meeting, Adelaide, Australia.
8. **Chattopadhyay, A.**, Bhattacharjee, D., Mukhrjee, S. (2012) Morphology and microstructure of brittle pseudotachylyte vein systems from Gavilgarh-Tan Shear Zone, central India, and its seismic implications. *Rock Deformation and Structure II Symposium, Lucknow University* (Abstract and Oral Presentation)
9. Bhattacharjee, D., **Chattopadhyay, A.**, Jain, V. (2012) Geological significance of Phanerozoic fault reactivations in western part of Gavilgarh-Tan shear Zone, central India. *Rock Deformation and Structure II Symposium, Lucknow University* (Abstract and Poster)
10. Jain, M., Bhattacharjee, D., **Chattopadhyay, A.** (2012) Three dimensional geometry of thrusts and its control on the evolution of curved thrust traces in contractional orogens: an experimental investigation. *Rock Deformation and Structure II Symposium, Lucknow University* (Abstract and Poster)
11. Deol, S., Deb, M. and **Chattopadhyay, A.** (2008) Bhukia-Jagpura gold prospect: a preferred genetic model.

In: *International Workshop on Gold Metallogeny in India, 2008* (Pre-workshop volume) pp. 119-124.

12. Deb, M., **Chattopadhyay, A.** and Deol, S. (2008) Conditions and timing of gold mineralization in Gadag schist belt, constrained by structural and fluid inclusion data. In: *International Workshop on Gold Metallogeny in India, 2008* (Pre-workshop volume) pp. 90-96.
13. Deol, S., Deb, M. and **Chattopadhyay, A.** (2007) Bhukia-Jagpura area, South Rajasthan: a promising prospect of gold (abstract) *Presented at the National Seminar on Magmatism, Tectonism and Mineralization (MTM-2007), Nainital, India*
14. **Chattopadhyay, A.**, Holdsworth, R. E., Khasdeo, L. and Bergh, S. G. (2007) Multiple reactivation of pre-existing fabrics in a basement shear zone: Example from Gavilgarh-Tan Shear Zone, central India. *Poster presented at the Annual Meeting of the European Geophysical Union at Vienna, Austria.*
15. Wightman, R., Wilson, R. W., Holdsworth, R. E., Clegg, P., McCaffrey, K. J. W., Imber, J., **Chattopadhyay, A.**, Jones, R. R. and Wild, L. (2007) Visualisation and analysis of basement reactivation processes from the NW of Scotland: a case study from the Canisp Shear Zone, Achmelvich. *Abstract and oral presentation at the seminar on Continental Tectonics and Mountain Building (Geol. Soc. Lond. 'Peach & Horne Meeting') at Ullapool, Scotland.*
16. Bergh, S. G., Kullerud, K., Holdsworth, R. E., Armitage, P. E. B., Corfu, F., McCaffrey, K., Ravana, E., Wilson, R. W. and **Chattopadhyay, A.** (2007) The West Troms Basement Complex: an along-strike equivalent of the Lewisian crust assembled by Archaean through Palaeoproterozoic oblique collision events. *Poster presented at the seminar on Continental Tectonics and Mountain Building (Geol. Soc. Lond. 'Peach & Horne Meeting') at Ullapool, Scotland.*
17. **Chattopadhyay, A.**, Ghosh, N. and Rallan, S. (2005) Polyphase deformation and porphyroblast growth in pelitic schists of Sausar Group in Ramtek area, Maharashtra: a study of  $S_1 - S_6$  tectonites (Abstract) *Indian Geological Congress at Delhi University, Delhi, India. Abstract volume, p. 13-14.*
18. Bandyopadhyay, B. K., **Chattopadhyay, A.**, Khan, A.S. and Huin, A.K. (2001). Assembly of the Rhodinia Supercontinent: Evidences from the Sakoli and Sausar Belts in central India (Abstract). In: *Rhodinia, Gondwana and Asia (ISGRA, Japan). Gondwana Research, v.4, no. 4, 569-570.*
19. Huin, A.K., **Chattopadhyay, A.** and Khan, A.S. (1998). A reappraisal of stratigraphy and structure of the Sausar Mobile Belt around Deolapar-Pauni-Manegaon area, Nagpur District, Maharashtra, India. (Abstract). *International Seminar on Precambrian Crust in Eastern and Central India. UNESCO-IUGS-IGCP-368, Bhubaneswar, India. p. 38-40.*

#### **D. Research Report/Thesis (unpublished):**

1. **Chattopadhyay, A.** (2007) Digital mapping and analysis of continental basement shear zones: a case study from Canisp Shear Zone, NW Scotland. *Final report of the Royal Society (London) International Visiting Fellowship to Durham University, UK.*
2. **Chattopadhyay, A.** (1997) Evolution of structures in fold-thrust belts: an experimental study. *Unpubl. Ph. D. Thesis, Jadavpur University, Calcutta, India. (Ph.D. degree awarded in 1999)*

#### **Conference Organization/ Presentations (in the last three years)**

*List against each head (If applicable)*

**Organized the 5<sup>th</sup> Conference and Workshop on Rock Deformation and Structures (RDS-V) at the Department of Geology, University of Delhi (4-6 October 2018) (as Convener/Co-Ordinator) – a national level seminar in Structural Geology and Tectonics attended by more than 125 delegates from all over India.**

## Research Projects (Major Grants/Research Collaboration)

Four research projects completed:

1. **Structural Evolution of Gavilgarh-Tan Shear zone, central India: Field , Microstructural and Experimental Approach (SR/S4/ES-69/2003) : Rs. 9.22 Lakhs (funded by DST)**
2. **Gold Metallogeny: An Integrated Approach through Petrological-Geochemical-structural studies in some less known potential prospects (ESS/16/207/2004): Rs. 21.49 Lakhs (funded by DST) (Co-PI with Prof. Mihir Deb)**
3. **Brittle reactivation of Gavilgarh-Tan Shear Zone, and its seismogenic implications (SR/S4/ES- 470/2009): Rs. 18.83 lakhs (funded by DST)**
4. **A study of pseudotachylytes formed in different tectonic settings of India for understanding the genesis of frictional melts in response to seismogenic faulting in the upper crust : Rs. 12 lakhs (funded by UGC)**
5. **GIS-based digital mapping of natural deformational structures: development of methodology and application to structurally controlled ore deposits: Rs. 37.06 Lakhs (Funding by SERB).**

Research Collaborations: Durham University, UK; The Open University, Milton Keynes, UK; Hiroshima University, Japan.

## Awards and Distinctions

**National Mineral Award**, Govt. of India for 'distinguished services toward basic geosciences' (1999)

**Royal Society (London) International Academic Fellowship** for research work in Durham University, UK (2006-07)

**Fellow, West Bengal Academy of Science and Technology (2018)** for distinguished contribution to Earth Sciences (Structural Geology).

## Association With Professional Bodies

1. *Editing*
2. *Reviewing*: Reviewing research papers for **Journal of Structural Geology, Geophysical Journal International, Journal of Geodynamics, International Journal of Earth Sciences (Geologische Rundschau), Journal of the Geological Society of India; Current Science, Journal of Earth System Science, Indian Journal of Geosciences**, and also for **MOES and DST-SERB Projects**.
3. *Advisory*
4. *Committees and Boards*: **Member, State Expert Appraisal Committee (SEAC) of Ministry of Environment, Govt. of Delhi (2015-2018)**.
5. *Memberships*
6. *Office Bearer*: Founding council member of **Structural Geology and Tectonics Studies Group India (SGTSGI)**.

## Other Activities

- Delivering thematic lectures and imparting field training as an invited faculty to the participants of '**Structural Geology Refresher Courses**' organized by Geological Survey of India, at Zawar Training Centre, Rajasthan Since 2011.
- Acting as a **Scientist-mentor** in the **Summer Research Fellowship** program of the Indian Science Academies (INSA, IASc, NASI), and to the **DST Inspire Fellowship** program (2011-present)
- Acted as External examiner for **several Ph.D. thesis** (Jadavpur University, IIT Mumbai, ISI Kolkata) and as External **paper setter** (ISM, Dhanbad).
- Acted as expert on selection committee for teachers of Dibrugarh University, Assam.

Signature of Faculty Member