# Dr. Sukalpa Chatterjee

*Isotope Geochemist*

*Postdoctoral Fellow*

Department of Earth Sciences
University of Cambridge, UK
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## EDUCATION

**University of Bern, Bern, Switzerland**

***Ph.D.*** *in Earth Sciences (2020 – 2024)*

*Ph.D. Thesis:* The role of lithosphere and deep mantle in the genesis of Archean crust: A record from the Singhbhum Craton**.**

*Supervisors:* Prof. Dr. Klaus Mezger, PD Dr. Martin Wille

**Indian Institute of Technology Roorkee (IITR), Roorkee, INDIA**

***M.Sc****. in Applied Geology (2017 – 2019)*

*Supervisors:* Dr. Barun K. Mukherjee, Prof. Dr. Dilip K. Mukhopadhyay

**Presidency University, Kolkata, INDIA**

***B.Sc.*** *in Geology with University Gold Medal (2014 – 2017)*

**Uttarpara Amarendra Vidyapith (High School), Uttarpara, INDIA**

*Graduated and Qualified for University Entry with High School Gold Medal (May 2014)*

## TEACHING EXPERIENCE

**University of Bern, Bern, Switzerland (2021 – 2024)**

- Teaching assistant for the course 'Basics of Earth Sciences I, Practical' (Bachelor's level)
- Teaching assistant for the course 'Basics of Earth Sciences II, Practical' (Bachelor's level)
- Field assistant for the excursion 'Oceanic Lithosphere and subducted equivalents (Zermatt) - 2021' (Master's level)

**Indian Institute of Technology Roorkee (IITR), Roorkee, India (2018 – 2019)**

- Teaching assistant for the course 'Ore Geology' (Master's level)

## ANALYTICAL EXPERIENCE

**Mass Spectrometry**

High-precision measurement of stable and radiogenic isotope abundances by isotope dilution (both mixed spike and double spike) with ThermoFisher **Neptune Plus MC-ICP-MS** (**Rb, Sr, Sm, Nd, Lu, Hf** and **Mo**) and ThermoFisher **Triton Plus TIMS** (**Sr, Nd**) mass spectrometers. Sr isotope analysis in apatite using **Laser Ablation MC-ICP-MS**. **U-Pb** isotope analysis in zircon using **SHRIMP**.

**Clean laboratory**

Experience in Rb-Sr, Sm-Nd, Lu-Hf and Mo isotope method development and optimization for samples with very low element abundances (e.g. <10 ng/g Mo in ultramafic rocks, <10 ng/g Hf laterite, <50 ng/g Sr in komatiites and serpentinites). Experience in lab and instrument maintenance such as acid distillation, acid waste control, Teflon beaker cleaning, cleaning of the Aridus desolvating nebulizer, inspection of cones, and changing parts of the Neptune Plus (e.g., extraction lens, high-resolution slit, electronic relays, magnet valves for the interface cooling system, etc.).

## LANGUAGES

- Bengali (mother tongue)
- English (fluent)
- Hindi (fluent)

## RESEARCH EXPERIENCE

- 2024- Postdoc Researcher at the Department of Earth Sciences, University of Cambridge, UK.
- 2020- 24 Swiss National Science Foundation (SNSF) PhD researcher. SWITZERLAND
- 2019 Research Intern, Wadia Institute of Himalayan Geology, Dehradun, INDIA.
- 2018 Research Intern, Department of Earth Sciences, University of Toronto, CANADA.
- 2018 Research Intern, Departments of Earth and Planetary System Sciences, Hiroshima University, Higashi-Hiroshima, JAPAN.
- 2017 Research Intern, Wadia Institute of Himalayan Geology, Dehradun, INDIA.

## AWARDS/SCHOLARSHIPS/GRANTS

- 2024 **Swiss National Science Foundation's Postdoc Mobility** fellowship.
- 2019 **Carl Storm International Diversity (CSID)** travel grant for GRC Geochronology conference, Waterville Valley, NH, USA.
- 2019 **Best Master's Thesis** of Batch 2019, Earth Sciences, IIT Roorkee. INDIA.
- 2018 Hiroshima University travel grant to attend Hiroshima Institute of Plate Convergence Region Research (**HiPeR**) symposium, JAPAN.
- 2018 **Summer Research Grant**, INSPIRE Scholarship, Dept. of Science and Technology, INDIA.
- 2017 **Prof. Asru Kumar Chaudhuri Gold Medal**, for batch of 2014-17 in B.Sc Geology, Presidency University, Kolkata, INDIA.
- 2017 **University Gold Medal**, for batch 2014-2017, Presidency University, Kolkata, INDIA.
- 2017 **Summer Research Fellowship**, Indian Science Academy - Indian National Science Academy – National Academy of Science combined fellowship.
- 2016 Prestigious **Dr. J Coggin Brown Award** by The Mining Geological and Metallurgical Institute of India (MGMI) for best B.Sc student in geology.
- 2016 **Shouvik Banerjee Memorial Prize** for "Best Field Geologist". Presidency University, Kolkata, INDIA.
- 2014-19 **Innovation in Science Pursuit for Inspired Research (INSPIRE)** Scholarship, Department of Science and Technology, INDIA.
- 2014 State 12$^{th}$ Examination (**99.90 Percentile**, 33$^{rd}$ state rank among >1million students).

## SCIENTIFIC WORKSHOPS/SYMPOSIA

- 2023 **Swiss SIMS** winter school, University of Lausanne, SWITZERLAND.
- 2022 Thermodynamic Modelling of Magmatic Systems with **alphaMELTS 2**. Hawaii, USA.
- 2018 Hiroshima Institute of Plate Convergence Region Research (**HiPeR**) international Symposium, Hiroshima University, JAPAN.
- 2017 **GIAN** course on SHRIMP and its application to isotope geochemistry, by Prof. Ian Williams.

## DEPARTMENT/UNIVERSITY SERVICE

- 2021- 24 **Social Media Team**, Institute of Geological Sciences, University of Bern.
- 2016-17 **Joint Secretary**, Geological Institute (oldest student run geology organization in India), Presidency University, Kolkata.
- 2015-16 **Assistant Secretary**, Geological Institute, Presidency University, Kolkata.

## GEOLOGICAL FIELD EXPERIENCE

- 2024 **Reykjanes and Northern Volcanic Zones**, ICELAND.
- 2023 Martinique Island, **Lesser Antilles** (Caribbean Island), FRANCE.
- 2022 Paleoarchean Eastern and Southern Iron Ore Group, **Singhbhum Craton**, INDIA.

- 2021 Neoarchean granitoids and greenstone belts, **Eastern Dharwar Craton**, INDIA.
- 2021 Paleoarchean granitoids and greenstone belts, **Singhbhum Craton**, INDIA.
- 2019 North and South Delhi fold belt, **Aravalli Craton**, Rajasthan, INDIA.
- 2018 **Sanbagawa metamorphic belt** in Shikoku Island, JAPAN.
- 2018 **Bhagirathi Valley**, Western Garhwal Himalaya, INDIA.
- 2018 **Jurassic accretionary complex**, Yamaguchi, JAPAN.
- 2018 Palghat gap, **Southern Granulite Terrain**, & Nilgiri Hills Ooty, INDIA.
- 2017 Ankleshwar, Dinod & Tadkeswar area of **Cambay Basin**, Gujrat, INDIA.
- 2016 Poly-deformed terrane in **North Singhbhum Mobile Belt (NSMB)**, Galudhi, INDIA.
- 2015 Angul, Odissa, Talchir Formation of **Gondwana succession**, INDIA.

## RESEARCH SUPERVISION

- 2022 **Florian Amacher** (Masters Student, Co-supervised), University of Bern.
- 2021-22 **Tobias Arnold** (Masters Student, Co-supervised), University of Bern.
- 2021-22 **Alina Hofer** (Bachelors Student, Co-supervised), University of Bern.

## PEER-REVIEWED JOURNAL ARTICLES

- **Chatterjee, S.,** Ravindran, A., Ahmad, Q., Pandey, O. P., Wille, M., Mezger, K. (2025). Coeval formation of continental crust and cratonic mantle facilitated by surface material recycling in the Paleoarchean: Constraints from molybdenum isotopes. *Earth and Planetary Science Letters*, 654, 119227. https://doi.org/10.1016/j.epsl.2025.119227

- Ulrich, M., **Chatterjee, S.**, Rubatto D., Hoog. C-J. (2025) Serpentine dehydration in the subducted lithosphere produce no B isotope fractionation. *Geochemical Perspectives Letters, 34, 11-16*. https://doi.org/10.7185/geochemlet.2507

- Damanik, A., Wille, M., Ahmad, Q., **Chatterjee, S.**, Crowe, S. A., Bauer, K. W., Grosjean, M., Cahyarini, S. Y., Bijaksana S., Russell, J. M., Vogel, H. (2024) Low Mo mobility during the laterization of ultramafic bedrock: Evidence from the East Sulawesi Ophiolite, Indonesia. *Chemical Geology*, 122150. https://doi.org/10.1016/j.chemgeo.2024.122150.

- **Chatterjee, S.**, Mezger, K., Pandey, O. P., Kielman-Schmitt, M., Hofer, A., & Kooijman, E. (2023). The Singhbhum Craton (India) records a billion year of continental crust formation and modification. *Chemical Geology*, 121772. https://doi.org/10.1016/j.chemgeo.2023.121772

- Tamblyn, R., Hermann, J., Hasterok, D., Sossi, P., Pettke, T., & **Chatterjee, S.** (2023). Hydrated komatiites as a source of water for TTG formation in the Archean. *Earth and Planetary Science Letters*, *603*, 117982. https://doi.org/10.1016/j.epsl.2022.117982

## ARTICLES IN PEER-REVIEW

## ABSTRACTS AND OTHER PUBLICATIONS

- Ulrich, M., **Chatterjee, S.**, Rubatto D., Hoog. C-J. (2024) Serpentine dehydration in the subducted lithosphere produce no B isotope fractionation. *5th Serpentine Days Workshop* (Granada, Spain). **[Talk]**

- **Chatterjee, S.,** Ravindran, A., Ahmad, Q., Pandey, O. P., Wille, M., Mezger, K. (2023). Formation of sub continental lithospheric mantle was enabled by subduction driven recycling of surface derived material in the Paleoarchean. *21st Swiss Geosciences Meeting* (Mendrisio, Switzerland, November 2023). **[Talk]**

- **Chatterjee S.,** Ravindran A., Ahmad, Q., Pandey, O. P., Wille, M., Mezger, K. (2023). Archean mantle metasomatized by sediment melts recorded in mafic dykes of the Singhbhum Craton. *32nd Goldschmidt Conference* (Lyon, France, July 2023). **[Talk]** https://doi.org/10.7185/gold2023.17072

- Tamblyn, R., Hermann, J., Hasterok, D., Sossi, P., Pettke, T., & **Chatterjee, S.** (2023). Hydration and metamorphism of komatiites as a source of water for TTG formation in the Archean. *32nd Goldschmidt Conference* (Lyon, France, July 2023). **[Talk]** https://doi.org/10.7185/gold2023.19073

- Hermann, J., Tamblyn, R., Hasterok, D., Sossi, P., Pettke, T., & **Chatterjee, S.** (2023). Hydrated komatiites as a source of water for TTG formation in the Archean. *EGU General Assembly* (Vienna, Austia, May 2023). **[Talk]** https://doi.org/10.5194/egusphere-egu23-5476

- Tamblyn, R., Hermann, J., Hasterok, D., Sossi, P., Pettke, T., & **Chatterjee, S.** (2022). Serpentinites as a source of water for continental crust formation in the Archean. *20th Swiss Geosciences Meeting* (Lausanne, Switzerland, November 2022). **[Talk]**

- **Chatterjee, S.**, Ravindran, A., Ahmad, Q., Wille, M., Mezger, K., Prakash, P. O. (2022). Dykes trace sediment subduction in the Archean. *20th Swiss Geosciences Meeting* (Lausanne, Switzerland, November 2022). **[Talk]**

- **Chatterjee, S.**, Mezger, K., Pandey, O. P., Kielman-Schmitt, M., Kooijman, E. (2022). Initial $^{87}Sr/^{86}Sr$ from apatite and $^{176}Hf/^{177}Hf$ from zircon - whole rock pair constrain the origin of Archean felsic crust and presence of Archean crustal cycle. *31st Goldschmidt Conference* (Honolulu, USA, July 2022). **[Talk]** https://doi.org/10.46427/gold2022.12217

- **Chatterjee, S.**, Mezger, K., Pandey, O. P., Kielman-Schmitt, M., Kooijman, E. (2021). Strontium isotope analyses of matrix apatite and apatite incluions in zircon constrain the evolution of the Paleoarchean Singhbhum Craton. *19th Swiss Geosciences Meeting* (Geneva + Virtual, Switzerland, November 2021). **[Talk]**

- **Chatterjee, S.**, Mezger, K., Pandey, O. P., Kielman-Schmitt, M., Kooijman, E. (2021). Evolution of Paleoarchean Singhbhum Craton: Constrains from Sr isotope analysis of apatite inclusions in zircon. *30th Goldschmidt Conference* (Virtual, July 2021). **[Talk]** https://doi.org/10.7185/gold2021.5739

- **Chatterjee, S.**, Pandey, O. P., Ravindran, A., Mezger, K., Upadhyay, D. (2020). Mafic dykes from Archean Singbhbhum Craton: a window into the evolution of sub-continental lithospheric mantle. *18th Swiss Geosciences Meeting* (Zurich + Virtual, Switzerland, November 2020). **[Talk]**

- **Chatterjee S.**, Mukherjee B. K. (2019). Zircons from an UHP terrain: Tso Morari, Ladakh Himalaya. *Geochronology Gordon Research Conference (GRC)*. (Waterville Valley, USA, August 2019). **[Poster]** 10.13140/RG.2.2.25401.08808

- **Chatterjee S.**, Das K., Chu X. (2018). Constraining different metamorphic and igneous events in Higher-Himalayan Crystalline rocks, Bhagirathi Valley, India from U-Pb zircon geochronological data. *Annual Meeting of Japan Association of Mineralogical Sciences* (Tohoku, Japan 2018). **[Talk]** 10.14824/jakoka.2018.0_175

- **Chatterjee S.**, Mukherjee B. K. (2018). Rock-fluid interaction in silicates. *Hiroshima Institute for Plate Convergence and Region Research (HiPeR) International Conference.* (January, Hiroshima, Japan 2018). **[Poster]**