Bodhisatwa Hazra

Assistant Professor, Department of Applied Geology, IIT (ISM) Dhanbad, India

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Address: Department of Applied Geology, IIT (ISM) Dhanbad, Jharkhand 826004, India

Previously worked as Visiting Scientist at Institute of Applied Geo-science, Christian-Albrechts-University of Kiel, Germany through SERB International Research Experience (SIRE)

Experience

Assistant Professor

Department of Applied Geology, Indian Institute of Technology (Indian School of Mines), Dhanbad

(from 27th August 2025)

Coal Geology, Petroleum Geochemistry, CCUS

Senior Scientist & Head, Coal-Rock Chemistry and Structure Division

FE-SEM & Rock-Eval lab

(15th November 2017 to 26th August 2025)

Coal Geology, Petroleum Geochemistry, Unconventional hydrocarbon reservoir assessment

SERB International Research Experience (SIRE) Fellow and Visiting Scientist

Christian Albrechts University in Kiel

(September 2023 to February 2024)

DST Inspire Faculty, Indian Institute of Technology Kharagpur

(Assistant Professor Tenure Track;

5th August, 2016 - 10th November, 2017)

Petroleum Engineering, Coal Bed Methane

Postdoctoral Fellow, Indian Institute of Technology Bombay

(29th January, 2016 – 03rd August, 2016)

Unconventional source-rock characterization, Rock-Eval pyrolysis, GC-MS

Education

Ph.D.
Indian School of Mines, Dhanbad
Organic Petrology, Shale Gas
February 2012- July 2015

Master of Science
Burdwan University
Geology, Sedimentology
2010

Bachelor of Science
Burdwan University
Geology (Hons.)
2008

Key Skills

Professional	Related	Personal
Shale gas	Rock-Eval	Scientific presentation
Source-rock characterization	Vitrinite reflectance	Analysis and results
CO_2 sequestration	FE-SEM	Communication
Coal Petrology	FTIR	
Petroleum Geochemistry	Autosorb	

Publications (Peer-reviewed Journals)

1. Chowdhury, M., Sarkar, K., **Hazra, B.***, Sadeghpour, F., Panda, M., Vishal, V. and Ostadhassan, M., 2025. Effects of Rapid Thermal Exposure from Igneous Intrusions on the Pore Structure, Thermal Maturity, and Nanomechanical Properties of Coal and Shale. *Energy & Fuels*.
2. Kumar, A., Mustapha, K.A., Singh, V.P., **Hazra, B.**, Gopinathan, P. and Mathews, R.P., 2025. Paleodepositional environment and source rock potential of Paleogene lignite and shale horizons in the Saurashtra Basin, Western India. *International Journal of Coal Science & Technology*, *12*(1), pp.1-20.
3. Sethi, C., **Hazra, B.**, Boral, P. and Kumar, S., 2025. Insights from Optical-Electron Correlative Microscopy on Shales Subjected to Underground Thermal Treatment. *Journal of the Geological Society of India*, *101*(5), pp.714-716.
4. Chakraborty, P., Singh, S., Wood, D.A., **Hazra, B.**, Kumar, P. and Kumar, P.V., 2025. Spatio-temporal variation, integrated quantification of source attribution, and health risk assessment of metal trace element contamination in coal mining soils of the Eastern Raniganj basin, India. *Journal of Environmental Chemical Engineering*, *13*(3), p.116567.
5. Sadeghpour, F., Motra, H.B., Sethi, C., Wind, S., **Hazra, B.**, Aghli, G. and Ostadhassan, M., 2025. Elastic properties of anisotropic rocks using an stepwise loading framework in a true triaxial testing apparatus. *Geoenergy Science and Engineering*, *251*, p.213883.
6. Sethi, C., Motra, H.B., **Hazra, B.*** and Ostadhassan, M., 2025. Influence of lithological contrast on elastic anisotropy of shales under true-triaxial stress and thermal conditions. *International Journal of Rock Mechanics and Mining Sciences*, *190*, p.106100.
7. Kumar, S., Chandra, D., **Hazra, B.**, Vishal, V., Ranjith, P.G., Das, A., Ahuja, M. and Ghosh, S., 2025. Integration of fluid-invasive, scattering, and imaging methods in resolving pore structures in coal and shale. *Fuel*, *395*, p.135185.
8. **Hazra, B.***, Motra, H.B., Hower, J.C., Mastalerz, M., Sethi, C. and Schobert, H., 2025. Elastic anisotropy and deformation characteristics of Pennsylvania anthracite. *International Journal of Coal Geology*, *303*, p.104740.
9. Ghosh Dastidar, S., Sarkar, K., Chandra, D., **Hazra, B.** and Vishal, V., 2025. Investigating Pore Characteristics and Their Dependence on Shale Composition: Case Study from a Permian Basin in India. *ACS Omega*.
10. Sennaoui, B., Ling, K., Ostadhassan, M., Delshad, M., **Hazra, B.** and Fatah, A., 2025. Subsurface CO2 Storage in Unconventional Reservoirs: Insights into Pore-Scale Characterization of Geochemical Interactions and Particle Migration. *Geoenergy Science and Engineering*, p.213688.
11. Kar, N.R., Mani, D., Buragohain, J., **Hazra, B.**, Babu, E.V.S.S.K., Seetha, B.S., Mudiam, M.K.R. and Maurya, A.S., 2025. Source Rock Properties, Depositional Environment and Kerogen Degradation Kinetics of Lower Permian Shales from the Ib River Sub-Basin, Mahanadi Basin, Eastern India. *Journal*

of Petroleum Geology.

12. **Hazra, B.,** Wood, D.A., Panda, M., Sethi, C., Vishal, V., Chandra, D. and Ostadhassan, M., 2025. Pore Structural Complexities and Gas Storage Capacity of Indian Coals with Various Thermal Maturities. *Energy & Fuels*.
13. Liu, X., Huang, Y., Babaei, S., **Hazra, B.** and Ostadhassan, M., 2024. Experimental and molecular simulation of carbon dioxide solubility in hexadecane at varying pressures and temperatures. *Chemical Engineering Journal*, p.157721.
14. Rahman, T., **Hazra, B.** and Vishal, V., 2025. Pore structure evolution of Jharia coal for potential underground coal thermal treatment and associated CO2 sequestration. *Fuel*, *381*, p.133577.
15. Chakraborty, P., Singh, S., **Hazra, B.**, Majumdar, A.S. and Kumari, J., 2024. Spatial distribution, source apportionment, and health risks assessment of trace elements in pre-and post-monsoon soils in the coal-mining region of North Karanpura basin, India. *Science of The Total Environment*, *955*, p.177173.
16. Mishra, K., Behera, S.K., Patel, S.K., Singh, P., Buragohain, J., **Hazra, B.**, Mandal, S.K. and Kumar, R., 2024. Experimental Investigation on the Mechanical and Microstructural Properties of Cemented Coal Ash Based Paste Backfill Reinforced with Polypropylene Fibre. *Indian Geotechnical Journal*, pp.1-15.
17. **Hazra, B.***, Singh, P.K., Sethi, C. and Pandey, J.K., 2024. Application of Optical-electron Correlative Microscopy for Characterization of Organic Matter. *Journal Of The Geological Society Of India*, *100*(10), pp.1385-1394.
18. **Hazra, B.***, Chandra, D., Vishal, V., Ostadhassan, M., Sethi, C., Saikia, B.K., Pandey, J.K. and Varma, A.K., 2024. Experimental study on pore structure evolution of thermally treated shales: implications for CO2 storage in underground thermally treated shale horizons. *International Journal of Coal Science & Technology*, *11*(1), p.61.
19. Abdi-Khanghah, M., Wu, K.C., Soleimani, A., **Hazra, B**. and Ostadhassan, M., 2024. Experimental investigation, non-isothermal kinetic study and optimization of oil shale pyrolysis using two-step reaction network: Maximization of shale oil and shale gas production. *Fuel*, *371*, p.131828.
20. Safaei-Farouji, M., Sethi, C., **Hazra, B.**, Gao, Y., Fattahi, E., Vishal, V., Pandey, J.K. and Ostadhassan, M., 2024. CO2 Storage Potential of Coaly Shales of the Barakar Formation in the Rajmahal Basin, India. *Energy & Fuels*.
21. Adsul, T., O'Beirne, M.D., Fike, D.A., Ghosh, S., Werne, J.P., Gilhooly III, W.P., Hackley, P.C., Hatcherian, J.J., Philip, B., **Hazra, B.** and Bhattacharyya, S., 2024. Decoding paleomire conditions of paleogene superhigh-organic-sulfur coals. *International Journal of Coal Geology*, p.104559.
22. Wang, C., Liu, B., Mohammadi, M.R., Fu, L., Fattahi, E., Motra, H.B., **Hazra, B.**, Hemmati-Sarapardeh, A. and Ostadhassan, M., 2024. Integrating experimental study and intelligent modeling of pore evolution in the Bakken during simulated thermal progression for CO2 storage goals. Applied Energy, 359, p.122693.
23. Gopinathan, P., Mahato, A., Kumar, O.P., Kumar, A., Subramani, T., Karmakar, A., **Hazra, B.**, Banerjee, P.K., Saini, M.K. and Sethi, M.K., 2024. Evaluation of Singrauli Coals for Sustainable Energy Utilisation: Insight From Geochemical and Petrographic Perspectives. *Geological Journal*.
24. Sethi, C., **Hazra, B.***, Ostadhassan, M., Motra, H.B., Dutta, A., Pandey, J.K. and Kumar, S., 2024. Depositional environmental controls on mechanical stratigraphy of Barakar Shales in Rajmahal Basin, India. International Journal of Coal Geology, p.104477.
25. Kumar, S., Chandra, D., **Hazra, B.**, Vishal, V. and Pathegama Gamage, R., 2024. Nanopore Characteristics of Barakar Formation Shales and Their Impact on the Gas Storage Potential of Korba and Raniganj Basins in India. Energy & Fuels.

26. Aggarwal, N., Mishra, D. and **Hazra, B.**, 2024. Study on sequence stratigraphy in the Permian sediments of terrestrial sequences within the Chintalapudi sub-basin, Godavari Coalfield, Southern India: insight from palynology and geochemistry. *Environmental Earth Sciences*, *83*(8), p.233.
27. Karan, K.K., Masto, R.E., Agarwalla, H., Bari, S., Kumar, M., Gopinathan, P., **Hazra, B.**, Saha, S. and Maity, S., 2024. Separation of coal combustion residue for critical element extraction and other bulk uses. Environmental Science: Advances, 3(1), pp.109-118.
28. **Hazra, B.**, Chandra, D., Lahiri, S., Vishal, V., Sethi, C. and Pandey, J.K., 2023. Pore Evolution during Combustion of Distinct Thermally Mature Shales: Insights into Potential In Situ Conversion. Energy & Fuels, 37(18), pp.13898-13911.
29. Bhapkar, P.V., Pradhan, S.P., Chandra, D., **Hazra, B.** and Vishal, V., 2023. Systematic Pore Characterization of Sub-Bituminous Coal from Sohagpur Coalfield, Central India Using Gas Adsorption Coupled with X-ray Scattering and High-Resolution Imaging. Energy & Fuels.
30. Chakraborty, P., Singh, S. and **Hazra, B.***, 2023. Soil pollution in Indian coal mines, available remediation techniques and rock dust application: A review. Journal of Earth System Science, 132(3), p.147.
31. Mishra, S., Peketi, A., **Hazra, B.**, Da Silva, R. and Mazumdar, A., 2023. Nature and hydrocarbon potential of organic matter in offshore Mahanadi Basin, east coast of India. Journal of Earth System Science, 132(3), p.108.
32. Sethi, C., Mastalerz, M., Hower, J.C., **Hazra, B.***, Singh, A.K. and Vishal, V., 2023. Using optical-electron correlative microscopy for shales of contrasting thermal maturity. International Journal of Coal Geology, p.104273.
33. Chakraborty, P., Wood, D.A., Singh, S. and **Hazra, B.**, 2023. Trace element contamination in soils surrounding the open-cast coal mines of eastern Raniganj basin, India. Environmental Geochemistry and Health, pp.1-28.
34. Sethi, C., **Hazra, B.***, Wood, D.A. and Singh, A.K., 2023. Experimental protocols to determine reliable organic geochemistry and geomechanical screening criteria for shales. Journal of Earth System Science, 132(2), p.45.
35. Sethi, C. and **Hazra, B.***, 2022. Source rock properties of Permian shales from Rajmahal Basin, India. Arabian Journal of Geosciences, 15(13), p.1219.
36. Chandra, D., Bakshi, T., Bahadur, J., **Hazra, B.**, Vishal, V., Kumar, S., Sen, D. and Singh, T.N., 2023. Pore morphology in thermally-treated shales and its implication on CO2 storage applications: A gas sorption, SEM, and small-angle scattering study. *Fuel*, *331*, p.125877.
37. **Hazra, B.***, Wood, D.A., Chakraborty, P., Singh, D.P., Sahu, S.G. and Sarkar, P., 2022. Comparative thermal behavior, Rock-Eval signature and kinetics of distinct thermally mature vitrain, fusain lithotypes and coals from India. *International Journal of Coal Preparation and Utilization*, pp.1-23.
38. **Hazra, B.**, Vishal, V., Sethi, C. and Chandra, D., 2022. Impact of Supercritical CO2 on Shale Reservoirs and Its Implication for CO2 Sequestration. *Energy & Fuels*, 36, 17, 9882–9903. https://doi.org/10.1021/acs.energyfuels.2c01894
39. **Hazra, B.***, Katz, B.J., Singh, D.P., Singh, P.K., 2022. Impact of siderite on Rock-Eval S3 and Oxygen Index. *Marine and Petroleum Geology,* **143**, 105804.
40. **Hazra, B.***, Singh, D.P., Chakraborty, P. *et al.*, *2022.* Structural and thermal properties of vitrain lithotype in coal-inferences from TG-DTG-DSC, Rock-Eval and X-ray diffraction. *J Earth Syst Sci* **131,** 98.
41. Singh, D.P., Wood, D.A., Singh, V., **Hazra, B.***, Singh, P.K., 2022. Impact of Particle Crush-Size and Weight on Rock-Eval S2, S4, and Kinetics of Shales. J*ournal of Earth Science*, 33(2): 513–524.

42. Chandra, D., Vishal, V., Bahadur, J., Agrawal, A.K., Das, A., **Hazra, B.**, Sen, D., 2022. Nano-scale physicochemical attributes and their impact on pore heterogeneity in shale. *Fuel*, 123070.
43. Singh, D.P., **Hazra, B.***, Wood, D.A. and Singh, P.K., 2021. Hydrocarbon generation and kinetics: A case study of Permian shales, India. *Journal of Asian Earth Sciences*, *222*, p.104960.
44. Singh, D.P., Chandra, D., Vishal, V., **Hazra, B.,** and Sarkar, P., 2021. Impact of degassing time and temperature on the estimation of pore attributes in shale. *Energy & Fuels*, *35*(19), pp.15628-15641.
45. Singh, D.P., Wood, D.A., **Hazra, B.*,** and Singh, P.K., 2021. Pore Properties in Organic-Rich Shales Derived Using Multiple Fractal Determination Models Applied to Two Indian Permian Basins. *Energy & Fuels*, *35*(18), pp.14618-14633.
46. Chakraborty, P., **Hazra, B.***, Sarkar, P., Singh, A.K., Singh, P.K. and Kumar, S., 2021. Thermal behavior of some Indian coals: inferences from simultaneous thermogravimetry–calorimetry and rock–eval. *Natural Resources Research*, *30*(3), pp.2161-2177.
47. Singh, D.P., Singh, V., Singh, P.K. and **Hazra, B.***, 2021. Source rock properties and pore structural features of distinct thermally mature Permian shales from South Rewa and Jharia basins, India. *Arabian Journal of Geosciences*, *14*(10), pp.1-16.
48. **Hazra, B.***, Singh, D.P., Chakraborty, P., Singh, P.K., Sahu, S.G. and Adak, A.K., 2021. Using rock-eval S4Tpeak as thermal maturity proxy for shales. *Marine and petroleum Geology*, *127*, p.104977.
49. **Hazra, B.***, Singh, D.P., Crosdale, P.J., Singh, V., Singh, P.K., Gangopadhyay, M. and Chakraborty, P., 2021. Critical insights from Rock-Eval analysis of vitrains. *International Journal of Coal Geology*, *238*, p.103717.
50. **Hazra, B.**, Vishal, V. and Singh, D.P., 2020. Applicability of low-pressure CO2 and N2 adsorption in determining pore attributes of organic-rich shales and coals. *Energy & Fuels*, *35*(1), pp.456-464.
51. Raghuvanshi, G., Chakraborty, P., **Hazra, B.***, Adak, A.K., Singh, P.K., Singh, A.K. and Singh, V., 2020. Pyrolysis and combustion behavior of few high-ash Indian coals. *International Journal of Coal Preparation and Utilization*, pp.1-21.
52. **Hazra, B.***, Wood, D.A., Singh, P.K., Singh, A.K., Kumar, O.P., Raghuvanshi, G., Singh, D.P., Chakraborty, P., Rao, P.S., Mahanta, K. and Sahu, G., 2020. Source rock properties and pore structural framework of the gas-prone Lower Permian shales in the Jharia basin, India. *Arabian Journal of Geosciences*, *13*(13), pp.1-18.
53. **Hazra, B.***, Sarkar, P., Chakraborty, P., Mahato, A., Raghuvanshi, G., Singh, P.K., Singh, A.K. and Mukherjee, A., 2020. Coal combustion analysis using Rock-Eval: importance of S4-T peak. *Arabian Journal of Geosciences*, *13*(12), pp.1-10.
54. **Hazra, B.***, Singh, A.K., Singh, P.K., Mani, D., Boral, P., Das, M., 2019. Hydrocarbon-generation potential and thermal maturity of few Indian coals: inferences from organo-petrography and Rock-Eval. Energy Sources, Part A: Recovery, Utilization, and Environmental Effects. https://doi.org/10.1080/15567036.2019.1695981
55. **Hazra, B.***, Karacan, C.Ö., Mani, D., Singh, P.K., Singh, A.K., 2019. Insights from Rock-Eval analysis on the influence of sample weight on hydrocarbon generation from Lower Permian organic matter rich rocks, West Bokaro basin, India. Marine and Petroleum Geology. Volume 106, Pages 160-170.
56. **Hazra, B.***, Chandra, D., Singh, A.K., Varma, A.K., Mani, D., Singh, P.K., Boral, P., Buragohain, J., 2019. Comparative pore structural attributes and fractal dimensions of Lower Permian organic-matter-bearing sediments of two Indian basins: Inferences from nitrogen gas adsorption. Energy Sources, Part A: Recovery, Utilization, and Environmental Effects. https://doi.org/10.1080/15567036.2019.1582737
57. Vishal, V., Chandra, D., Bahadur, J., Sen, D., **Hazra, B.**, Mahanta, B., Tiwari, D.M., 2019. Interpreting Pore Dimensions in Gas Shales Using a Combination of SEM Imaging, Small-Angle Neutron Scattering, and Low-Pressure Gas Adsorption. Energy and Fuels, 33, 6, 4835-4848.
58. Varma, A.K., Mishra, S., Tiwari, B., **Hazra, B.**, Kumar, S., Panigrahi, D.C. and Ojha, A., 2019. Petrographic controls on phosphorous distribution in coal seams of the Jharia basin, India. Journal of Earth System Science, 128(4), p.103.

59. Misra, S., Varma, A. K., **Hazra, B.**, Biswas, S., &Samad, S. K., 2019. The influence of the thermal aureole asymmetry on hydrocarbon generative potential of coal beds: Insights from Raniganj Basin, West Bengal, India. *International Journal of Coal Geology.* Volume 206, Pages 91-105.
60. Kumari, P., Singh, A.K., Wood, D., **Hazra, B.***, 2019. Predictions of gross calorific value of Indian coals from their moisture and ash content. *Journal of Geological Society of India*. Volume 93, Pages 437-442.
61. Wood, D.A. and **Hazra, B.,** 2018. Pyrolysis S2-peak characteristics of Raniganj shales (India) reflect complex combinations of kerogen kinetics and other processes related to different levels of thermal maturity. *Advances in Geo-Energy Research*, *2*(4), pp.343-368.
62. **Hazra, B.**, Wood, D.A., Kumar, S., Saha, S., Dutta, S., Kumari, P., Singh, A.K., 2018. Fractal Disposition and Porosity Characterization of Lower Permian Raniganj Basin Shales, India. *Journal of Natural Gas Science and Engineering.* Volume 59, 2018, Pages 452-465.
63. Varma, A.K., Biswas, S., Patil, D.J., Mani, D., Misra, S., **Hazra, B**., 2018. Significance of lithotypes for hydrocarbon generation and storage. *Fuel*. Volume 235, Pages 396-405.
64. **Hazra, B.,** Wood, D.A., Vishal, V., Singh, A.K., 2018. Pore-characteristics of distinct thermally mature shales: influence of particle sizes on low pressure CO2 and N2 adsorption. *Energy and Fuels*. Volume 32, Pages 8175−8186.
65. **Hazra, B.,** Wood, D.A., Varma, A.K., Sarkar, B.C., Tiwari, B., Singh, A.K. Insights into the effects of matrix retention and inert carbon on the petroleum generation potential of Indian Gondwana shales. *Marine and Petroleum Geology*. Volume 91, 2018, Pages 125-138.
66. **Hazra, B.,** Wood, D.A., Vishal, V., Varma, A.K., Sakha, D., Singh, A.K. Porosity controls and fractal disposition of organic-rich Permian shales using low-pressure adsorption techniques. *Fuel*. Volume 220, 2018, Pages 837-848.
67. Wood, D.A., **Hazra, B.** Characterization of Organic-rich Shales for Petroleum Exploration & Exploitation: A Review- Part 1: Bulk Properties, Multi-scale Geometry and Gas Adsorption. *Journal of Earth Science*. Volume 28(5), 2017a, Pages 739-757.
68. Wood, D.A., **Hazra, B.** Characterization of Organic-rich Shales for Petroleum Exploration & Exploitation: A Review- Part 2: Geochemistry, Thermal Maturity, Isotopes and Biomarkers. *Journal of Earth Science*. Volume 28(5), 2017b, Pages 758-778.
69. Wood, D.A., **Hazra, B.** Characterization of Organic-rich Shales for Petroleum Exploration & Exploitation: A Review- Part 3: Applied Geomechanics, Petrophysics and Reservoir Modeling. *Journal of Earth Science*. Volume 28(5), 2017c, Pages 779-803.
70. **Hazra, B.**, Dutta, S., Kumar, S. TOC calculation of organic matter rich sediments using Rock-Eval pyrolysis: Critical consideration and insights. *International Journal of Coal Geology*. Volume 169, 2017, Pages 106-115.
71. **Hazra, B.**, Varma, A.K., Bandopadhyay, A.K., Chakravarty, S., Buragohain, J., Samad, S.K., Prasad, A.K. FTIR, XRF, XRD and SEM characteristics of Permian shales, India. *Journal of Natural Gas Science and Engineering*. Volume 32, 2016, Pages 239-255.
72. **Hazra, B.**, Varma, A.K., Bandopadhyay, A.K., Mendhe, V.A., Singh, B.D., Saxena, V.K., Samad, S.K., Mishra, D.Petrographic insights of organic matter conversion of Raniganj basin shales, India. *International Journal of Coal Geology*. Volume 150-151, 2015, Pages 193-209.
73. Varma, A.K., **Hazra, B.**, Chinara, I., Mendhe, V.A., Dayal, A.M. Assessment of organic richness and hydrocarbon generation potential of Raniganj basin shales, West Bengal, India. *Marine and Petroleum Geology*. Volume 59, 2015, Pages 480-490.

74. Varma, A.K., Biswal, S., **Hazra, B.,** Mendhe, V.A., Misra, S., Samad, S.K., Singh, B.D., Dayal, A.M., Mani, D. Petrographic characteristics and methane sorption dynamics of coal and shaly-coal samples from Ib valley basin, Odisha, India. *International Journal of Coal Geology*. Volume 141-142, 2015, Pages 51-62.
75. Varma, A.K., Khatun, M., Mendhe, V.A., **Hazra, B.**, Singh, B.D., Dayal, A.M. Petrographic characterization and Langmuir volume of shales from Raniganj coal basin, India. *Journal of Geological Society of India*. Volume 86 (3), 2015, Pages 283-294.
76. a) Varma, A.K., **Hazra, B.**, Srivastava, A. Estimation of total organic carbon in shales through color manifestations. *Journal of Natural Gas Science and Engineering*. Volume 18, 2014, Pages 53-57.
    b) Atul K. Varma, **Hazra, B.**, Srivastava, A. Corrigendum to 'Estimation of total organic carbon in shales through color manifestations [J. Natural Gas Sci. Eng. 18 (2014) 53-57]. *Journal of Natural Gas Science and Engineering*. Volume 20, 2014, Page 1.
77. Varma, A.K., **Hazra, B.**, Samad, S.K., Panda, S., Mendhe, V.A. Methane sorption dynamics and hydrocarbon generation of shale samples from West Bokaro and Raniganj basins, India. *Journal of Natural Gas Science and Engineering*. Volume 21, 2014, Pages 1138-1147.

Role as corresponding author

Book/Monograph

- '**Evaluation of Shale Source Rocks and Reservoirs**' by **Hazra, B.**, Wood, D.A., Mani, D., Singh, P.K., Singh, A.K., 2019. Published by the prestigious '**Springer Nature**'.
- '**Unconventional Hydrocarbon Reservoirs: Coal and Shale**' by **Hazra, B.**, Chandra, D., Vishal, V., 2024. Published by the prestigious '**Springer Nature**'.
- '**Ash from Coal and Biomass Combustion**' by Singh, A.K., Masto, R.E., **Hazra, B.**, Esterle, J., Singh, P.K., 2020. Published by the prestigious '**Springer Nature**'.

Other relevant information

- Conferred with the prestigious **CSIR- Young Scientist Award 2019** in the field of Earth, Atmosphere, Ocean and Planetary Sciences
- Received the prestigious **DST-INSA Inspire Faculty award, 2015**
- Previously served as **Associate Editor, Arabian Journal of Geosciences**
- Currently serving as **Associate Editor, Journal of Geological Society of India**
- Editorial Board Member, **Nature Scientific Reports**
- Editorial Board Member, **Advances in Geo-Energy Research**
- Peer reviewer in several SCI journals
- Google Scholar Citations: 2299; h-index: 27; i10-index: 51
- Received **Merit Promotion (1-year early promotion)** for career advancement from Scientist to Senior Scientist position at CSIR-CIMFR Dhanbad
- Received the prestigious **'SERB International Research Experience (SIRE), 2023**' award for carrying out research at Germany
- **JGSI Radhakrishna Prize 2025** (from The Geological Society of India) for the best paper published in JGSI on "Application of Optical-electron Correlative Microscopy for Charaterization of Organic Matter"
- **K.R. Gupta Gold Medal Award** for the year 2025 (from The Geological Society of India). K.R. Gupta

Gold Medal is given to a Scientist, below 40 years, for outstanding contributions in any branch of Earth Science.

- Conferred with the prestigious **Melpadom Attumalil Georgekutty Young Scientist Award, 2025**
- **PhD's guided: 03** [01 as sole guide, 01 as main guide, and 01 as co-guide]