



## Dr. Divya Kumari Mishra


Scientist B

Birbal Sahni Institute of Palaeosciences,  
53 University Road, Lucknow 226007, India

Mobile: +91-7781810986;

Email: [dmdivya2@gmail.com](mailto:dmdivya2@gmail.com)

[divya.mishra@bsip.res.in](mailto:divya.mishra@bsip.res.in)

 0000-0002-7478-1343

 57206450499

**Research Interest:** Source rock evaluation/characterization, Hydrocarbon assessment, Geochemistry, Unconventional oil/gas, Organic Petrology

### -----Professional Appointments-----

Scientist B Birbal Sahni Institute of Palaeosciences, Lucknow 226007, India	06/2021 – Present
SERB-National Post-Doctoral Fellow Isotope and Geochemistry Division Birbal Sahni Institute of Palaeosciences, Lucknow 226007, India	04/2019 – 06/2021
Exchange Visiting Scientist Eastern Energy Resources Science Center U.S. Geological Survey, Reston, Virginia 20192, USA	02/2020 – 06/2020
Research Associate I Non-conventional Gas Division Central Institute of Mining and Fuel Research, Dhanbad 826015, India	09/2018 – 04/2019
Project Assistant Level-III Non-conventional Gas Division Central Institute of Mining and Fuel Research, Dhanbad 826015, India	04/2018 – 09/2018

### -----Education-----

Ph.D., Applied Geology Indian Institute of Technology, Dhanbad 826015, India Advisor: Prof. Atul K. Varma Dissertation: Geological and Petrographical Controls on Kerogens for Oil and Gas Generation Attributes to Auranga Basin, Jharkhand, India	07/2013 – 09/2018
Post-graduation (M.Sc.), Geology Vinoba Bhave University, Hazaribagh 825301, India	07/2009 – 07/2011
Graduation (B.Sc.), Geology Ranchi University / St. Xavier's College, Ranchi 834001, India	06/2006 – 06/2009
Intermediate/CBSE DAV, Barkakana, Ramgarh, Jharkhand, India	06/2003 – 06/2005
High school/ CBSE DAV, Barkakana, Ramgarh, Jharkhand, India	06/2001 – 06/2003

Divya K. Mishra, Ph.D.

-----**Awards, Honors, and Grants**-----

- USGS-Visiting Scientist–USGS-Exchange Visiting Scientist Program 2019 at U.S. Geological Survey, Energy Resources Science Center, Reston, VA, From February-June, 2020.
- SERB-National Post-Doctoral Fellowship– (N-PDF) 2019 under SERB Young Scientist Scheme.
- Student Travel Award – 35<sup>th</sup> IGC Travel Award to participate in 35<sup>th</sup> International Geological Congress, Capetown, South Africa from 36<sup>th</sup> International Geological Congress.
- Qualified U-SET 2015, Conducted by Government Uttarakhand in accordance with the guidance of UGC.
- Qualified ISM-JRF-2013, Conducted by Indian School of Mines, Dhanbad for admission to the Ph.D. Programme in institute.
- Secured First Class First (GOLD MEDAL) in the Post-Graduation Programme, Vinoba Bhave University.
- Secured First Class First (GOLD MEDAL) in the Graduation Programme, Ranchi University.
- Awarded Avinash Gupta Scholarship for securing first class first in all semesters during graduation.
- Secured an All India Rank of 150 in the JAM 2009 for admission to the M.Sc. Programme in Indian Institute of Technology's & other Institutions in India.
- Merit Scholarship from Central Coal Field Limited for five years from class 8-12.

-----**Project experience**-----

- Maturation kinetics and depositional environmental condition of Auranga basin in Lower Permian Formation, Jharkhand, India at USGS, USA & BSIP, India.
- Studies on Sorption induced strain and permeability changes in coal and shale as a result of CO<sub>2</sub> injection at Central Institute of Mining and Fuel Research (CIMFR), Dhanbad.
- Proximate Analysis of Coal and Determination of Adsorption and Desorption Characteristics of Coal Bed Methane at Central Institute of Mining and Fuel Research (CIMFR), Dhanbad, India in November 2010.
- Geophysical interpretation of ground water at Khuti,Ranchi at Central Ground Water Board, India in September, 2011.

-----**Service and Outreach**-----

- Technical reviewer for following journals and organization
  - Journal of Petroleum Science and Engineering
  - Journal of Natural Gas and Science Engineering
  - Energy and Fuels
- Professional Affiliations
  - The Society for Organic Petrology (TSOP, Membership Id: dmishra)
  - American Association of Petroleum Geologists (AAPG, Membership Id:10193990)
  - American Chemical Society (ACS, Membership Id:32566090)
  - Indian Science Congress Association (ISCA, Membership Id:L39105)
- Expert Lecture

Divya K. Mishra, Ph.D.

- On Unconventional Resource-An Introduction to Gas Hydrate and Shale for Hydrocarbon Generation Potential at ONGC centre of Advanced studies, Lucknow University, Lucknow 226007, India.

-----**Publications**-----

1. Divya Kumari Mishra, Paul C. Hackley, Aaron M. Jubb, Margaret M. Sanders, Shailesh Agrawal, Atul K. Varma. 2022. "Maturation study of vitrinite in carbonaceous shales and coals: Insights from hydrous pyrolysis" International Journal of Coal Geology, 259,2022,104044,ISSN 0166-5162. (<https://doi.org/10.1016/j.coal.2022.104044>.)
2. Divya Kumari Mishra, Atul Varma, Vinod Atmaram Mendhe, Shailesh Agrawal, Bhagwan Singh, Paul Hackley. 2021. "Organo-Facies and Mineral Effects on Sorption Capacity of Low Maturity Permian Barakar Shales from Auranga Basin, Jharkhand, India." Energy and Fuels, 35 (9):7717–7737. (<https://doi.org/10.1021/acs.energyfuels.0c04310>)
3. Suresh Kumar Samad, Divya Kumari Mishra, Runcie P. Mathews, Santanu Ghosh, Vinod Atmaram Mendhe, Atul Kumar Varma. 2020. "Geochemical attributes for source rock and paleoclimatic reconstruction of the Auranga Basin, India." Journal of Petroleum Science and Engineering, 185:106665. (<https://doi.org/10.1016/j.petrol.2019.106665>)
4. Susheel Kumar, Vinod Atmaram Mendhe, Alka Damodhar Kamble, Atul Kumar Varma, Divya Kumari Mishra, Mollika Bannerjee, John Buragohaina, Amal Kishore Prasad. 2019. "Geochemical attributes, pore structures and fractal characteristics of Barakar shale deposits of Mand-Raigarh Basin, India." Marine and Petroleum Geology, 103:377-396. (<https://doi.org/10.1016/j.marpetgeo.2019.02.026>)
5. Divya Kumari Mishra, Suresh Kumar Samad, Atul Kumar Varma, Vinod Atmaram Mendhe .2018. "Pore geometrical complexity and Fractal facets of Permian shales and coals from Auranga Basin, Jharkhand, India". Journal of Natural Gas and Science Engineering, 52:25-43. (<https://doi.org/10.1016/j.jngse.2018.01.014>)
6. Atul Kumar Varma, Divya Kumari Mishra, Suresh Kumar Samad, Amal Kishore Prasad, Durga Charan Panigrahi, Vinod Atmaram Mendhe, Bhagwan D. Singh. 2018. "Geochemical and Organo-Petrographic Characterization for Hydrocarbon Generation from Barakar Formation in Auranga Basin, India." International Journal of Coal Geology, 186: 97-114. (<https://doi.org/10.1016/j.coal.2017.12.002>.)
7. Vinod Atmaram Mendhe, Vivekanand Kumar, Vinod Kumar Saxena, Mollika Bannerjee, Alka Damodhar Kamble, Bhagwan D. Singh, Subhashree Mishra, Sadanand Sharma, Jaywardhan Kumar, Atul Kumar Varma, Divya Kumari Mishra, Suresh Kumar Samad. 2018. "Evaluation of gas resource potentiality, geochemical and mineralogical characteristics of Permian shale beds of Latehar-Auranga Coalfield, India." International Journal of Coal Geology. 196:43-62. (<https://doi.org/10.1016/j.coal.2018.06.022>)
8. Bodhisatwa Hazra, Atul K Varma, A.K Bandhopadhyay, V.A. Mendhe, B.D. Singh, V.K. Saxena, Suresh Kumar Samad, Divya Kumari Mishra. 2015. "Petrographic insight of organic matter conversion of Raniganj basin shale." International Journal of Coal Geology, 150–151:193–209, (<http://dx.doi.org/10.1016/j.coal.2015.09.001>)
9. Trivedi, R., Naval K., Divya Mishra. 2013. "Study of Cost Analysis of Closure of an Opencast Limestone Mine." Indian Journal of Environmental Protection, 33(8): 617-628.

Divya K. Mishra, Ph.D.

-----**Book/Book Chapter**-----

- Atul Kumar Varma, Debadatta Sen, Divya Kumari Mishra, Satabdi Misra, Anwita and Piyush Ranjan Das. 2015. "Petrographic make up in deciphering depositional environment of Damodar valley coal basins.", 2015. In: Frontiers of Earth Science. Scientific Publishers, Jodhpur, India.

-----**ScienceBase Catalog/Data Releases**-----

- Divya Kumari Mishra, Paul C. Hackley, Aaron M. Jubb, Margaret M. Sanders, Shailesh Agrawal, Atul K. Varma. 2022, Maturation study of vitrinite in carbonaceous shales and coals: U.S. Geological Survey-Data Release. <https://doi.org/10.5066/P9KNB6GP>.

-----**Presentation and Seminars**-----

1. Divya Kumari Mishra, Paul C. Hackley, Aaron M. Jubb, Shailesh Agrawal, Atul K. Varma, 2021. Maturation study of vitrinite in carbonaceous shales and coals: Preliminary Insights from hydrous pyrolysis. 37<sup>th</sup> TSOP Annual Meeting, Virtual from Sofia, BULGARIA - 12-14 September 2021. [https://archives.datapages.com/data/tsop/TSOPv37virtual\\_2021/oral/mishra.htm](https://archives.datapages.com/data/tsop/TSOPv37virtual_2021/oral/mishra.htm)
2. Divya Kumari Mishra, 2021. Shale Characteristics for Carbon Capture and Storage (CCS). Commonwealth Science Conference, The Royal Society, 22-26 February 2021. (Virtual Mode)
3. Divya Kumari Mishra, Shailesh Agrawal, Bhagwan D Singh. 2019. Type I (Algae) & II Kerogens in Shales and their implications to hydrocarbon generation potential in Auranga Coal Basin, Jharkhand, India. 12th International Symposium on Fossil Algae, Birbal Sahni Institute of Palaeosciences, 16-24 September 2019, Lucknow, India.
4. Atul Kumar Varma, Divya Kumari Mishra, Suresh. Kumar Samad, Vinod Atmaram Mendhe, and Sanki Biswas (2016). Geochemical, Mineralogical and Pore structure of Shales from Auranga basin, Jharkhand, India. 4433. Abstract 35th International Geological Congress, Cape Town, South Africa. (<http://www.americangeosciences.org/information/igc>)
5. Atul Kumar Varma, Divya Kumari Mishra, Vinod Atmaram Mendhe, Suresh Kumar Samad. 2016. "Hydrocarbon Generation potential of Shale gas from Auranga Basin, Jharkhand". In Proceedings of 6<sup>th</sup> World Petro Coal Congress uploaded <http://worldpetrocoal.Com/html/abstract/2016/DivyaKumariMishra.html>, 15-17<sup>th</sup> February 2016, New Delhi, India.
6. Atul Kumar Varma, Sanki Biswas, Satabdi Misra, Bodhisatwa Hazra, and Divya Kumari Mishra (2016). Organo-petrographic studies for hydrocarbon generation, storage and depositional environment of coal and shale in Barjora area, West Bengal, India. 4164. Abstract 35th International Geological Congress, Cape Town, South Africa. (<http://www.americangeosciences.org/information/igc>)
7. Atul Kumar Varma, Suresh Kumar Samad, Vinod Atmaram Mendhe, Bodhisatwa Hazra, Tony Dheria, Balram Tiwari, Divya Kumari Mishra, 2016. "Hydrocarbon generation potential of Auranga basin source rock, Jharkhand, India." 103<sup>rd</sup> Indian Science Congress, Mysore, 3-7 January. In Proceedings of 103<sup>rd</sup> Indian Science Congress.
8. Atul Kumar Varma, Debadatta Sen, Divya Kumari Mishra, Satabdi Misra, Anwita and Piyush Ranjan Das. 2015. "Petrographic make up in deciphering depositional environment of Damodar valley coal basins." 102<sup>nd</sup> Indian science congress, Mumbai, Jan 3-7, 2015. In Proceeding Indian Science Congress, pp.117.

-----**Laboratory Experience**-----

Divya K. Mishra, Ph.D.

- Hydrous Pyrolysis analysis at USGS, Eastern Energy Resources Science Center U.S. Geological Survey, Reston, Virginia 20192, USA.
- Isotopes analysis with Elemental Analyser- Isotope Ratio Mass Spectrometer at Birbal Sahni Institute of Palaeosciences, Lucknow, India.
- Proximate analysis and total gas estimation, –at CSIR-Central Institute of Mining and Fuel Research (CIMFR), Dhanbad-826015.
- Petrographic identification of macerals of coal and shale samples under transmitted, reflected and fluorescence light microscope at Coal Geology and Organic Petrology Laboratory, Department of Applied Geology, Indian School of Mines, Dhanbad.

-----**Experience with instruments**-----

Petrological microscope, Leica DM 2700 and DM 4500P, DM 750P optical microscope, Rock Eval 6 pyrolyzer (Turbo version), XRD(BRUKER binary V3) and XRF Rikako Koyama XRF instruments.

-----**Field Experience**-----

- Field visit to Auranga Coal field, for sample collections during doctoral study, 2013 Jharkhand, India.
- Sedimentary & Geomorphological study of Dhudhinala river section of Lower Permian age near Hazaribagh, 2011, Jharkhand, India.
- Structural mapping of the Precambrian rocks in & around Ghatsila, 2010, Jharkhand, India.
- Field study of Lesser Himalaya ranges near MBT, Massouri and Nanital, 2008, Uttarakhand, India.
- Bhurkunda Coalfield of undercast mine and Open Cast mine visit, 2006, Jharkhand, India.

-----**Academic work experience**-----

- Assist in Coal Geology practical classes of M. Tech 1<sup>st</sup> semester, M.Sc. Tech 3<sup>rd</sup> semester, M.Sc. Tech 5<sup>th</sup> semester, Integrated M.Sc. Tech 7<sup>th</sup> and 9<sup>th</sup> semester students (IIT Dhanbad)
- Assist in M.Sc. Tech and M. Tech dissertation works (IIT Dhanbad).
- Tutor of Geology at undergraduate level.

**Software Packages:** Arc-GIS, Corel, Minitab, Grapher, X'Pert High Score Plus, Origin, Microsoft word, Excel, Power point.

**Verbal and written communication skill:** English (R/W/S) and Hindi (R/W/S).

**References:**

- Prof. Atul Kumar Varma  
Professor  
Department of Applied Geology.  
Indian Institute of Technology (IIT-ISM)  
Dhanbad, India.  
Contact No: +91-9431724156.  
Email: atulvarma@hotmail.com
- Dr. Aaron M. Jubb,  
Research Chemist  
Eastern Energy Resources Science Center  
U.S. Geological Survey  
MS 956 12201 Sunrise Valley Dr.  
Reston, VA 20192, USA  
Contact No: 703- 648 - 6481,  
Email: ajubb@usgs.gov
- Dr. Paul C Hackley  
Research Geologist  
Eastern Energy Resources Science Center  
U.S. Geological Survey  
MS 956 12201 Sunrise Valley Dr.  
Reston, VA 20192, USA  
Contact No: 703-648-6458, fax: 703-648-6419  
Email: phackley@usgs.gov
- Dr. Vinod Atmaram Mendhe  
Senior Principal Scientist  
CSIR-Central Institute of Mining and  
Fuel Research,  
Brawa Road, Dhanbad-826015, India  
Contact No. +91-8002812047  
Email id: vamendhe@gmail.com