N**ational Conference**

**First Circular**

**on**



**GEOPHYSICAL ADVANCES - NATURAL RESOURCE EXPLORATION, ENERGY SECURITY AND GEOHAZARDS**

March 24 ‐ 26, 2023

**Organized by:**

**Department of Applied Geophysics**

**Indian Institute of Technology (Indian School of Mines)**

**Dhanbad ‐ 826 004, Jharkhand (INDIA)**

**Venue:**

**Indian Institute of Technology (Indian School of Mines)**

**Dhanbad – 826 004, Jharkhand (INDIA)**

# About the Conference

The energy sector was already visualising change to respond to the challenges of the energy transition, and the pandemic has simply accelerated this transformation. The frequency and intensity of extreme climate events keep increasing and demand for timely combined action by our society, governments, academic institutions, national labs, and investors. At the same time, the huge fluctuations in energy demand and prices associated with the reactivation of the economies have revealed the need for pragmatic solutions to ensure a sustainable transition that guarantees an uninterrupted vital energy supply. The waves of change that are affecting the energy sector and the digital workplace will inevitably impact the geosciences and engineering professionals who will have to adjust, develop and foster new competencies and practices in this new era. The scheduled meeting is timely and can play a major role in outlining and promoting some of these new competencies and practices that will make geoscientists and engineers more competitive in accessing the opportunities that the new environment will provide. In light of the aforementioned, we have chosen the topic for Conference on Geophysical Advances (CGA) entitled “**Geophysical Advances - Natural Resource Exploration, Energy Security and Geohazards**”. We are working on the conference programme that will address the challenges, will promote the debate, and will offer some guidance on the future of our professions. We are confident that it will be of interest to all members and we are looking forward to welcoming you to the coal capital of India - Dhanbad during March, 2023.

# About IIT (ISM) Dhanbad

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The Indian School of Mines (ISM),Dhanbad with 393 acres of campus area is located in the prime coking coal belt of India which is 260 km away from Kolkata city. The IIT (ISM) Dhanbad has all the facilities of a world-class academic institute and is fully residential. The Indian School of Mines was formally opened on 9th December 1926, by Lord Irwin, the then Viceroy of India to address the need for trained manpower related to mining activities in the country with disciplines of Mining and Applied Geology. In 1967 it was granted the status of a deemed to be university under Section 3 of the UGC Act, 1956. Over the last nine decades, ISM has incorporated important core engineering disciplines and has acquired the status of a full-fledged institute of global repute for imparting higher education in engineering, science, and management. The Indian School of Mines has been conferred the status of Indian Institute of Technology (IIT) on September 06, 2016, by the Government of India and has been renamed as Indian Institute of Technology (Indian School of Mines), Dhanbad. Since its establishment, the institute has undergone considerable expansion of its activities, and presently it can be considered a total technology education institute. IIT (ISM) offers B. Tech. (4 Years) courses in the 12 major disciplines of engineering; Integrated M. Tech. (5 Years) courses in Applied Geology, Applied Geophysics, and Mathematics & Computing; Master of Technology; Master of Science; Master of Science and Technology; Master of Business Administration; and awards Ph.D. Degree. IIT(ISM) Dhanbad has been contributing significantly to the growth and development of Mining, Mineral, Petroleum, and groundwater exploration in India.

# About the Department

The Department of Applied Geophysics, IIT (ISM) was established in 1957 and successfully completed 65 years with excellence. Since then, it has emerged as one of the premier geophysics departments in the country imparting quality teaching and research. Over the years, the Department has expanded manifold and offers many courses namely three years M.Sc. Tech. and five years integrated M. Tech. in Applied Geophysics, two years M. Tech in Earthquake Science and Engineering, and also offers a doctoral programme in Applied Geophysics. Students of the department are associated with the student’s chapter and other professional bodies such as SEG, EAGE, SPG, AEG, AAPG, and IGU. The department has more than 15 R&D ongoing projects, several national and international consultancy projects funded by several agencies and industries, and many national programmes such as DRS, UGC-SAP, COSIST, CAS, and FIST funded by the government of India. The Department is well-equipped with state-of-the-art geophysical instruments for various geophysical disciplines and has a number of laboratories i.e., Seismic, Gravity & Magnetic, Electrical & Electromagnetic, Geophysical Inversion, Global Optimization & Deep Learning, Rock & Petrophysics, and Remote Sensing, Geophysical Instrumentation and Seismological Observatory. The department is evolving in cutting-edge research. It has established a Center for Mineral Exploration and planning to establish SERB-Centre of Excellence in AI/ML modeling for early warning of extreme Geohazards in association with DST, New Delhi.



# Papers

It gives us great pleasure to welcome you to the National Conference on "**Geophysical Advances - Natural Resource Exploration, Energy Security, and Geohazards**" which will be organized at IIT(ISM) Dhanbad during 24 - 26 March 2023. Bringing together a diverse community of educators, scientists, researchers, engineers, industrial delegates, and policymakers who are working towards a world where scientific discovery leads to scientific solutions and where our global collaborations and partnerships can carry us into a sustainable future. This conference provides an opportunity to witness the most recent geophysical breakthrough, spanning from basic improvements in methodology to the most interesting case studies.

**Important Dates:**

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| **Last date of early bird registration** | **18 February 2023** |
| **Last date of abstract submission** | **28 February 2023** |
| **Acceptance of abstract** | **06 March 2023** |
| **Last date of late-registration** | **17 March 2023** |
| **Conference** | **24 - 26 March 2023** |

**First Day**

**Inauguration: Time: 04:00 – 05:30 PM**

**High Tea: 05:30 – 05:55 PM**

**Invited Talk: Chief Guest** Dr. M. Ravichandran, **06:00 – 07:00 PM**

Secretary, MoES New Delhi

**Cultural Event: 07:00 – 08:30 PM**

**Dinner: 08:30 – 10:00 PM**

**Conference Session**

**Second Day**

**Session 1:** AI/ML and Big Data in Earth Science Modelling

**Conveners:** Prof. Saumen Maiti & Prof. Swarandeep Sahoo **Time: 09:00 – 10:30 AM**

Special Talk: Prof. Mrinal Sen, University of Texas, Austin, USA **10:30 – 11:00 AM**

**Tea Break: 11:00 – 11:25 AM**

**Session 2:** Advances in Geophysical Inversion, Numerical Modelling, and Uncertainty Quantification

**Conveners:** Prof. Upendra K. Singh & Prof. Arun Singh **Time: 11:30 – 01:00 PM**

Special Talk: Prof. S. P. Sharma, IIT Kharagpur **01:00 – 01:30 PM**

**Lunch Break: 01:30 – 02:30 PM**

**Session 3:** Solid Earth Geosciences: Geohazards and Early Warning

**Convener:** Prof. P. K. Khan & Prof. Niptika Jana **Time: 02:30 – 04:00 PM**

Special Talk: Dr. O. P. Mishra, Director, NCS, MoES, New Delhi  **04:00 – 04:30 PM**

**Tea Break: 04:30 – 04:55 AM**

**Session 4:** Advancement in Natural Resource Exploration and the Energy Security in India

**Convener:** Prof. Saurabh Datta Gupta & Prof. Y. Giri **Time: 05:00 – 06:30 PM**

Special Talk: Dr. Kalachand Sain, Director, WIHG, Dehradun  **06:30 – 07:00 PM**

**Third Day**

**Session 5:** Continental Margins and Deep Ocean Basins: Geoscientific Advancement

**Conveners:** Prof. Anil K. Chaubey & Prof. G. S. Rao **Time: 09:00 – 10:30 AM**

Special Talk: Prof. Anil K. Chaubey, IIT(ISM) Dhanbad **10:30 – 11:00 AM**

**Tea Break: 11:00 – 11:25 AM**

**Session 6:** Recent Advances in Engineering and Environmental Geophysics

**Conveners:** Prof. Sanjit Kumar Pal & Prof. Mohit Agrawal **Time: 11:30 – 01:00 PM**

Special Talk: Prof. Biswajeet Pradhan, University of Technology, Sydney **01:00 – 01:30 PM**

**Lunch Break: 01:30 – 02:30 PM**

**Session 7:** Higher Education in Earth Sciences

**Conveners Prof. Rajeev Shekhar,** Shri Shailesh Kumar Singh, **Time: 02:30 – 03:30 PM**

**Prof. V. M. Tiwari, Dr. N. Khare, Dr. B. K. Bansal**

**Invited Talk**  Guess of Honor Shri Shailesh Kumar Singh,Secretary, **03:30 – 04:00 PM**

Department of Rural Development, GoI, New Delhi

**Panel Discussion**   **04:00 – 04:30 PM**

**Valedictory function 04:30 – 05:30 PM**

**Vote of Thanks 05:30 – 05:45 PM**

**High Tea: 05:45 – 06:00 PM**



**Registration**

## At least one author of each accepted paper must register for the paper to be included in the conference proceeding. Student’s registration is only applicable if the first author of the paper is a registered student at an institution. Registration Fees (including GST @18%):

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| **Delegate Type** | **Early Bird Rates (01 delegate)**  **(Till 18th February, 2023)** | **Standard Rates (01 delegate) (After 18th February, 2023)** |
| Participants from Industry | INR 8000/‐ | INR 10000/‐ |
| For Faculty | INR 5000/‐ | INR 7000/‐ |
| For Research Scholars/students | INR 2000/‐ | INR 3000/‐ |
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**Advertisement**

Souvenir (abstract book) consists of highlights of technical programme, delegates list and abstracts. It will be distributed to all participants. Advertisements in this book provide a golden opportunity for industries and others to advertise their products and services for future business and growth.

**Advertisement rates and technical details are available on the conference page of the institute website https://codedstrawhat.github.io/eventre/index.html**

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**National Conference on**

**GEOPHYSICAL ADVANCES - NATURAL RESOURCE EXPLORATION, ENERGY SECURITY AND GEOHAZARDS**

**(March 24 - 26, 2023)**



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