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PRESS-RELEASE

IIT (ISM) Dhanbad Hosts Expert Talk by Prof. Mrinal K. Sen from University of Texas at Austin on Full Waveform Inversion

The Department of Applied Geophysics, IIT (ISM) Dhanbad, organized an expert talk by internationally acclaimed geophysicist **Prof. Mrinal K. Sen**, Professor at the Department of Earth and Planetary Sciences and the Institute for Geophysics, **University of Texas at Austin, USA**, on the topic **"An Overview of Full Waveform Inversion for Subsurface Characterization."** The session was held at the New Academic Complex (NAC) and drew enthusiastic participation from faculty members, research scholars, and students.

In his comprehensive lecture, Prof. Sen elaborated on how seismic data—both from active and passive sources—have been extensively utilized for imaging subsurface structures across multiple domains, such as oil and gas exploration, earthquake analysis, CO_2 storage monitoring, geotechnical assessment, non-destructive testing, and even medical imaging.

He introduced the audience to the **Full Waveform Inversion (FWI)** technique, a cutting-edge method that leverages complete seismic waveforms to solve complex inverse problems, ultimately helping estimate unknown wave velocity distributions within the Earth. Prof. Sen highlighted the **fundamental principles**, **current limitations**, and **recent advancements** in FWI, illustrating his points with real-world examples and applications of the technique.

The session began with a **welcome address by Prof. Sanjit Kumar Pal**, Head of the Department of Applied Geophysics, who expressed gratitude for Prof. Sen's presence and emphasized the importance of such academic interactions in enhancing research and innovation within the institute.

The lecture served as a valuable learning experience for attendees, offering deep insights into modern seismic imaging technologies and fostering a spirit of inquiry and collaboration.

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