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PRESS-RELEASE

IIT (ISM) Hosts Expert Lecture on Gas Hydrates and Their Implications for Global Changes

The Department of Applied Geophysics at the Indian Institute of Technology (Indian School of Mines) Dhanbad, hosted a thought-provoking lecture by **Prof. Uma Shankar** from the Department of Geophysics, Institute of Science, Banaras Hindu University (BHU), on the topic "**Gas Hydrates and Their Implications for Global Changes: Energy, Environment, and Climate.**"

Addressing an audience comprising faculty members, research scholars, postgraduate, and undergraduate students, **Prof. Uma Shankar** highlighted the importance of responsible management and further research into gas hydrates, emphasizing the need to assess their safe utilization without exacerbating global warming or destabilizing ecosystems.

Gas hydrates, also known as methane hydrates, are **ice-like crystalline compounds** that form under **high-pressure, low-temperature** conditions in deep-sea sediments and permafrost regions. These hydrates are significant because they contain **large amounts of methane**, a potent greenhouse gas with major implications for energy, the environment, and climate change.

During his talk, **Prof. Uma Shankar** explained that gas hydrates can be identified on seismic profiles through an **anomalous reflector known as the Bottom Simulating Reflector (BSR)**, which cuts across the dipping strata in seismic sections. He further emphasized that **gas hydrates represent a vast and largely untapped source of natural gas**, with estimates suggesting that the methane stored in these hydrates exceeds all known fossil fuel reserves combined.

"If harnessed safely, gas hydrates could become a significant energy resource for the future," noted **Prof. Uma Shankar**. However, he cautioned that their **extraction or destabilization** poses significant risks to the environment and marine ecosystems. Researchers are actively studying methane hydrate reserves to better understand their **size, distribution, and the risks associated with their destabilization**.

During the session, **Prof. Uma Shankar** underscored the double-edged nature of gas hydrates. While they hold promise as a potential energy resource, their **environmental and climate implications are profound**. He stressed the urgent need for responsible management and further research to determine whether these hydrates can be safely utilized without negatively impacting global warming and ecosystem stability.

"This balance between **energy production and climate protection** will play a crucial role in shaping the future of our planet's energy landscape," **Prof. Uma Shankar** concluded.

The event was attended by faculty members, research scholars, and students, and was presided over by **Prof. Sanjit Kumar Pal**, Head of the Department of Applied Geophysics, IIT (ISM), Dhanbad. The talk provided deep insights into an emerging area of research with significant implications for future energy security and environmental sustainability.

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