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PRESS-RELEASE

IIT (ISM) Dhanbad Hosts Expert Talk on "Array Signal Processing for Brain Source Localization" by Prof. Lalan Kumar of IIT Delhi

The Department of Electronics Engineering, IIT (ISM) Dhanbad, organized an expert talk on Friday on the topic **"Array Signal Processing for Brain Source Localization"**, delivered by **Prof. Lalan Kumar**, Department of Electrical Engineering, IIT Delhi. The session was held at the J.C. Bose Classroom, 6th Floor, Academic Complex, and witnessed the enthusiastic participation of faculty members, students, and research scholars.

Prof. Kumar, an expert in signal processing and a former software engineer with Motorola's Mobile Division in Bangalore, shared in-depth insights into array signal processing, with a special focus on its applications in EEG sensor arrays for brain source localization. He discussed optimal array processing techniques including **Multiple Signal Classification (MUSIC)** and **standardized Low-Resolution Brain Electromagnetic Tomography (sLORETA)**, both widely used for non-invasive brain mapping.

During his address, Prof. Kumar emphasized the evolution of compact device technologies and the growing use of sensor arrays—from handheld devices such as mobile phones to large-scale defense systems. He highlighted that compared to traditional single-channel signal processing, sensor arrays offer superior interference separation, making them vital tools in modern applications.

He also introduced the audience to **spatial and head harmonics domains**, supplementing his presentation with various simulations and real data experiments to demonstrate practical implementation.

The event was presided over by **Prof. Ravi K. Gangwar**, Head of the Department of Electronics Engineering, who extended a warm welcome and felicitated Prof. Kumar for his invaluable contribution to the session.
This expert talk is part of the department's ongoing initiative to bring cutting-edge research and expert insights to its academic community.

Rajni Singh
Dean (Corporate Communications)