



# SERB Sponsored Workshop On THz Communication for Next-generation Wireless Networks

Under SERB Scientific Social Responsibility (SSR) Policy  
July 14, 2023



## About Institute

The foundation of the Indian Institute of Technology (Banaras Hindu University) can be attributed to Mahamana Pandit Madan Mohan Malviya, Bharat Ratna, who established the Banaras Hindu University, the first residential university in modern India. In 1968, the three engineering colleges of BHU, namely BENCO, MINMET, and TECHNO, were merged to create the Institute of Technology (IT-BHU) with the aim of providing a comprehensive educational platform. In recognition of its excellence, IT-BHU was renamed IIT (BHU) on June 29, 2012, through an Act of Parliament. IIT (BHU) Varanasi has been highly regarded in national rankings. The institute offers a four-year Bachelor of Technology program, five-year Integrated Dual Degree programs, and various postgraduate programs.

**About Department:** The Department of Electronics Engineering (DEE) was established in 1971 as a branch of the Electrical Engineering Department. The department maintains close collaborations with esteemed national research and development laboratories, leading software companies, and foreign universities in key areas such as wireless communications, signal processing, and microelectronics.

## THz Communications: Opportunities and Challenges for 6G

As 5G networks are being rolled out and deployed globally, attention is already turning towards the future of telecommunications: the 6th generation, known as 6G, with devices expected to be launched by 2030. It is a growing need for high-speed communications in 6G to support emerging technologies such as immersive computing, augmented reality/virtual reality (AR/VR), 3D holography, haptics, ultra-massive connectivity, and more. The aim is to harness the power of technology in a way that is beneficial, equitable, and environmentally conscious.

The implementation of terahertz (THz) band communication is a key area of focus for next-generation wireless networks. The THz band, which operates in the frequency range from 0.1 to 10 THz, offers vast potential for enabling ultra-high-speed data transmission and accommodating the ever-increasing demands of emerging applications.

The global interest in THz bands for various applications, including communications, has sparked discussions on the potential of 6G networks. However, numerous challenges need to be addressed to enable viable communications in THz bands. These challenges include waveform design, processing speed and complexity, beam squint, and high path loss, and other factors. Consequently, it is imperative to explore revolutionary and early analysis and design concepts in order to effectively overcome these challenges in THz communication. Further, research and collaboration among academia, industry, and regulatory bodies are vital to overcome the technical, regulatory, and standardization challenges and realize the full capabilities of THz communication in future wireless networks.

## Who can attend

Faculty members (nearby colleges) working in the area of Wireless Communication/ Signal Processing/ Cyber Physical Systems/ Data Science/ AI and ML for wireless systems and other relevant areas of wireless communication and signal processing.

## Certification

Attendees will be given E-certificate.

## Registration Details

There is no registration fee. **Deadline of registration is July 12, 2023.**

## For registration visit:

<https://forms.gle/fsFjz7r261nw2mxE8>

## Location

Department of Electronics Engineering, IIT (BHU) Varanasi

## Workshop Coordinator:

Dr. Sanjeev Sharma, IIT (BHU) Varanasi, India  
Email: [sanjeev.ece@iitbhu.ac.in](mailto:sanjeev.ece@iitbhu.ac.in)

The Workshop offers a valuable platform for participants to gain insights and knowledge regarding the opportunities and challenges of Terahertz band communication in the context of 6G wireless networks.

Workshop  
on  
THz Communication for Next-generation Wireless Networks  
Date: July 14 (Friday), 2023



Scan to register:

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