

# Next-Generation Wireless Communication Technologies

*Under the SPARC-UKIERI Scheme, IIT (BHU) Varanasi, India and University of Edinburgh, UK.*



## About SPARC-UKIERI

The UK-India Education and Research Initiative (UKIERI) is the flagship bilateral collaboration program between the UK and India, focused on education and research. By strengthening educational and research partnerships, UKIERI helps both countries achieve their knowledge ambitions. It provides funding to support joint research projects between Indian researchers and their international counterparts.

## Workshop: Next-generation Wireless Communication Technologies

The workshop on 6G and Wireless Communication Technology provides a comprehensive exploration of the next generation of wireless communication systems, highlighting the revolutionary capabilities and advancements anticipated with 6G technology. The workshop is driven by the growing demand for faster, more reliable, and more efficient communication networks. It focuses on cutting-edge technologies, including millimeter-wave communication, massive MIMO, AI/ML-based wireless networks, and Internet of Things (IoT) integration, aiming to equip participants with a deep understanding of the evolving landscape. By addressing key concepts, challenges, and potential applications of 6G, this workshop prepares professionals and researchers to be at the forefront of wireless communication technology, fostering innovation and expertise in this rapidly advancing field.

The primary objectives of the workshop are as follows. Exposing participants to the fundamentals of wireless communication techniques. Providing a deep understanding of wireless communication techniques associated with MIMO communications systems, NTN networks, space-time coding, BLAST architectures, precoding technique, and related information-theoretic capacity limits. Providing the students with a clear idea of singleuser, multi-user, and multicarrier communications, single and multi-cell (including the emerging small cell architectures), and ad-hoc networks. Exposing the students to advance mobile communication techniques such as massive

MIMO, non-orthogonal multiple access (NOMA) communications, AI/ML, full-duplex radio, and the Internet of Things (IoT), orthogonal time frequency space (OTFS) modulation. Providing hands-on experience on the latest communication (LTE, massive MIMO) and signal processing techniques through labs and tutorials.

### Who can attend

BE/B.Tech./M.Sc./ME/M/Tech./PhD Students and Early Researchers studying/working in the area of Wireless Communication/ Signal Processing/ Cyber Physical Systems/ IoT/ Data Science/ Machine Learning/ Artificial Intelligence/ 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 December 1, 2025.

### For registration visit:

<https://forms.gle/2DAFbdwTey5rTz7n6>

### Location

Committee Room, Department of Electronics Engineering, IIT (BHU) Varanasi

### Workshop Organizers:

Prof. Tharmalingam Ratnarajah, University of Edinburgh, UK, [T.Ratnarajah@ed.ac.uk](mailto:T.Ratnarajah@ed.ac.uk)

Prof. Amritanshu Pandey, IIT (BHU) Varanasi, India, [amrit.ece@iitbhu.ac.in](mailto:amrit.ece@iitbhu.ac.in)

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

Prof. Kuntal Deka, IIT Guwahati, India, [kuntaldeka@iitg.ac.in](mailto:kuntaldeka@iitg.ac.in)

The Workshop will provide an opportunity to understand and learn about 5G and 6G communication technologies, as well as the challenges for next-generation wireless networks.

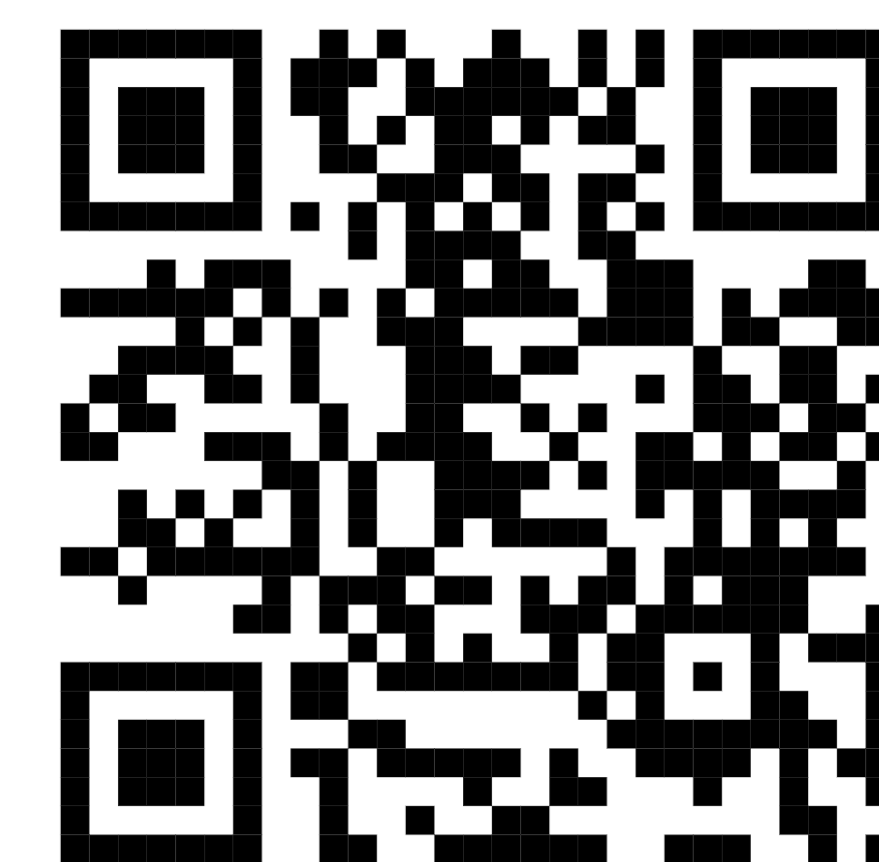
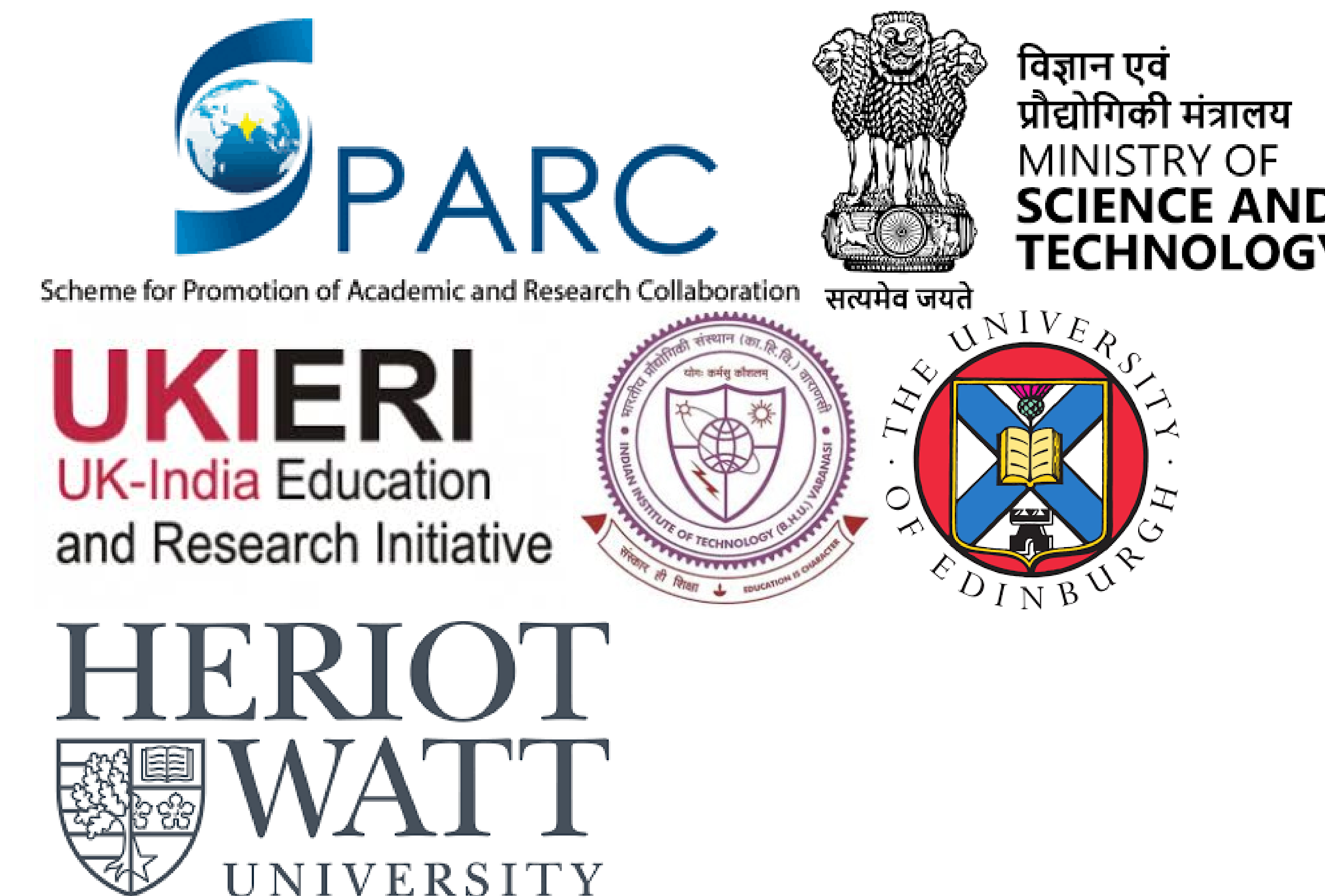
**SPARC Sponsored**

**Workshop**

**on**

**Next-Generation Wireless Communication Technologies**

**Date: 19-20 December 2025**



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