SNS JU Brokerage Event

Professor Timothy O'Farrell FREng

Chair in Wireless Communication

Email: T.OFarrell@sheffield.ac.uk

Department of Electronic & Electrical Engineering,
University of Sheffield,
UK

Horizon Europe 6G SmartNetwork Services Joint Undertaking/ 6G Radio Systems

University of Sheffield

Proposed Approach & Experience

What is your understanding of the part of the problem/challenge you can solve?
What previous, relevant, work or track record can you bring to the team?

The proposed use of sub-THz frequency bands in 6G creates the need for advanced integrated radio transceivers that should support multi-band operation, multi-mode signals and antenna array deployments for MIMO. These requirements create significant research challenges in terms of minimising transceiver complexity, energy consumption and costs. Software-Defined-Radio (SDR) techniques based on Single Chain Radio Transceivers are an extremely attractive solution to these challenges. Since 2011 Sheffield has worked on numerous EPSRC and UK national projects researching SDR technology to address such challenges. Currently, Sheffield is a partner in the DSIT YO-RAN £7M national project looking at such solutions for Open RAN radio units.

Partners

If you are looking for partners, what type of partners are you looking for?

We are looking for:

1. *University partners with complementing RF systems expertise – specifically, MIMO expertise, RF circuits at subTHz, waveforms for wireless systems and channel sounding expertise*
2. *Industry partners with circuit integration expertise at subTHz frequencies and cellular technology development*
3. *Network operators with expertise in cellular network deployments, Open RAN and energy efficiency.*

Organisational Capabilities

What skills, capabilities, facilities does your organisation have that will be vital for this project?

Sheffield hosts the UKRI National 6G Radio Systems Facility and the UKRI National Millimetre-wave Facility. These state-of-the-art, internationally leading facilities enable cutting edge research on radio systems development for 5G and 6G systems. The facilities provide a complete measurement capability up to 220GHz encompassing waveform definition, baseband processing, RF circuit development and antenna array measurements. Academic staff and researchers at Sheffield are internationally recognised for their contributions to radio systems design and energy efficiency in wireless communications system. Our expertise extends to 5G Private networks in advanced manufacturing environments through AMRC North West (https://www.amrc.co.uk/pages/amrc-north-west).

Administrative Information

Organisation Type: Academic
Willing to Coordinator or be a Partner

Contact details:

Name: Professor Timothy O'Farrell FREng
Email: t.ofarrell@Sheffield.ac.uk
Tel: +44 114 222 5193
Country: UK
organisation's Participant Identification Code (PIC): 999976881

Thank You