



Acadamh Ríoga na hÉireann Royal Irish Academy

The 19th RIA/URSI Research Colloquium on Radio Science and Communications Public Lectures

Wednesday, 26th October, 17:30-19:30

Royal Irish Academy, Academy House, 19 Dawson Street, Dublin 2

In-person event with wine reception

free to attend, Register online

<https://www.ria.ie/19th-riaursi-research-colloquium-radio-science-and-communications>

Keynote Talk 1: Energy Sustainability for Net-Zero Wireless Communications

Speaker: Professor Nuno Borges Carvalho, University of Aveiro, Portugal

Abstract: The energy needs for wireless systems are limiting the evolution of future IoT and 5G solutions. The main objective of this talk is to discuss future wireless paradigms that will be changing the energy aspects of IoT and wireless applications, which include the design of battery-less wireless devices, combining wireless power transmission and backscatter communications. The talk starts with a general overview of the energy needs for future generation networks and then presents the design of battery-less wireless sensor networks. Issues, like the characterization and design of passive backscatter sensors, will also be discussed.



Speaker's Bio: Nuno Borges Carvalho received his Diploma and Doctoral degrees in electronics and telecommunications engineering from the University of Aveiro, Portugal, in 1995 and 2000, respectively. He is currently a Full Professor and a Senior Research Scientist with the Institute of Telecommunications, University of Aveiro. He published over 400 journal and conference papers. His research interests include software-defined radio front-ends, backscatter communications, wireless power transmission, nonlinear distortion analysis, and measurements in microwave/wireless circuits and systems. Prof. Borges Carvalho is an IEEE Fellow. He has been an elected AdCom member of the IEEE Microwave Theory and Technology Society (MTT-S) since 2018 and in 2022 he is the President-Elect of

IEEE MTT-S.

Keynote Talk 2: Ubiquitous connectivity will be shared, open and secure

Speaker: Joe Barry, Analog Devices, Ireland

Abstract: With 5G networks reaching critical mass and the definition of 6G beginning, the architectures and technologies for realizing ubiquitous connectivity are coming into focus. This talk will highlight elements of the advanced networks needed to achieve this goal. Implementation will require open interfaces, shared resources, and intelligently managed multi-stakeholder ecosystems at scale, all secured within a zero-trust environment. We will review the path forward to achieve this goal and some of the efforts that are already underway.



Speaker's Bio: Joe Barry is the Vice President of the Wireless Communications Business Unit at Analog Devices. In this role Joe is responsible for the creation and execution of Analog Devices' strategy for the full suite of radio solutions for the wireless communications market. Joe has served in leadership roles in the wireless communications, consumer and semiconductor industry for more than 26 years. As VP of Wireless Communications, Joe is responsible for the Wireless Market Segment, along with the Technology groups of High Speed Converters, SDR Transceivers, and Microwave Communications. Prior to Joe's current role he was the General Manager for the Wireless Systems Group where he was responsible for driving the strategic plan for the wireless business and developing our

customer penetration and support strategy. Joe earned a B.Eng. in electrical and electronic engineering from University Greenwich and MBA from the University of Limerick. He holds five patents in analog and digital video and audio technologies.

