



DIPARTIMENTO DI INGEGNERIA DELL'ENERGIA ELETTRICA
E DELL'INFORMAZIONE "GUGLIELMO MARCONI"

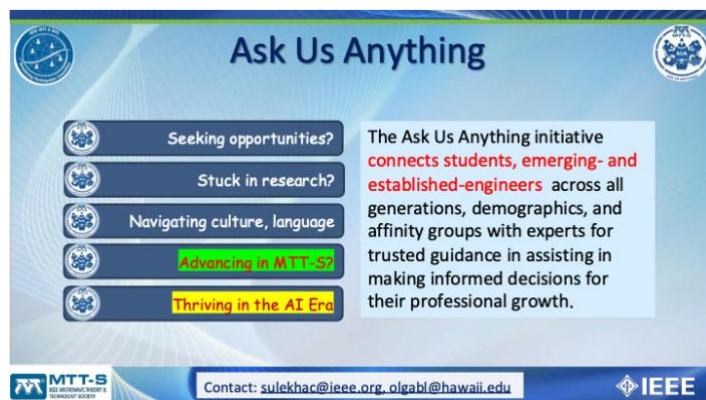
IEEE – MTT- S Distinguished Microwave lecturers and “Ask us everything”
October 13, 2026, h. 09:00 - 11:30
Aula 1.4 Scuola d'Ingegneria, Università di Bologna, Via Risorgimento 2,
Bologna.

Dr. Sulekha Chattopadhyay, California Environmental Protection Agency: **“IEEE-MTT-S Ask Us Everything”**

Prof. Vittorio Camarchia, MTT-S Distinguished Microwave Lecturer, Politecnico di Torino, Italy: **“High-Frequency Doherty Power Amplifiers: Challenges and Design Approaches”**

Prof. Luigi Boccia, MTT-S Distinguished Microwave Lecturer Università della Calabria, Italy: **“The Role of Millimeter-Wave Beamforming and Integration Technologies on Non-Terrestrial Networks”**

Dr. Sulekha Chattopadhyay



Bio: Dr. Sulekha Chattopadhyay is a Senior Member of IEEE and a Fulbright Specialist with over two decades of experience in driving California’s science-based transportation policies. She is a senior engineer with the California Environmental Protection Agency, and has worked on regulation development, research and technology evaluation. Her portfolio of programs is valued at approximately \$800 million, and her leadership extends to emerging electrification technologies including wireless charging and the development of standards for vehicle-to-grid (V2G) systems, and communications protocols for electric vehicle supply equipment (EVSE). Among her multiple assignments within IEEE’ societies, she also serves as the technical program chair for IEEE’s Online Forum for Climate Technologies, and is the Vice-Chair of Microwave Theory and Technology Society’s (MTTS) the Ad-Hoc Committee on Microwave Technologies for Sustainability, where she works diligently to organize inter-society panels and delivers lectures around the world raising awareness of the urgent environmental challenges facing our society, and highlighting how microwave technologies can contribute to a more sustainable future. Passionate about connecting technology with societal and environmental needs, Sulekha is committed to workforce development, inspiring future STEM leaders, and making science

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accessible to the public. She co-chairs IEEE MTT-S's "Ask Us Anything," an inclusive, judgment-free forum that brings together professionals across generations, demographics, and backgrounds to foster open dialogue, candid discussion, and professional advancement.

Prof. Vittorio Camarchia

Abstract: Doherty power amplifiers are widely used to achieve high efficiency with high-PAPR signals, but their extension to millimetre-wave frequencies is far from trivial. At high frequency, classical Doherty assumptions no longer hold, and efficiency, gain, bandwidth, linearity, and implementation constraints become strongly interdependent. This lecture provides a design-oriented perspective on the key challenges limiting high-frequency Doherty operation and discusses practical methodologies to address them. Topics include gain behaviour, on-chip power combination, bandwidth limitations, and linearity degradation, with emphasis on architectural trade-offs rather than idealized solutions. The discussion is supported by measured GaN MMIC examples for 5G and satellite applications.

Bio: Vittorio Camarchia is an Associate Professor at the Department of Electronics and Telecommunications, Politecnico di Torino, Italy. His research focuses on high-efficiency and high-linearity RF/microwave power amplifiers for 5G/6G and satellite communications, with emphasis on load-modulated architectures, including Doherty, Chireix, and LMBA amplifiers, GaN/GaAs MMIC design, and broadband linearization. He is Chair of IEEE MTT-S TC-23 Wireless Communications for 2025–2026, a member of IEEE MTT-S TC-12 Microwave High-Power Techniques, and an IEEE MTT-S Distinguished Microwave Lecturer for 2026–2028.

Prof. Luigi Boccia

Abstract: Non-terrestrial networks are moving from a complement to terrestrial connectivity towards a fully integrated segment of 5G and 6G systems. Meeting the resulting link-budget, throughput and latency requirements at K/Ka-band and above places the burden squarely on the antenna front-end: electronically steerable apertures must combine wide scanning ranges, low profile and low power consumption, at a cost compatible with mass deployment. This lecture reviews the beamforming architectures that address these constraints, from passive and reconfigurable transmitarrays to fully integrated phased arrays, and examines the integration technologies that make them viable - SiGe BiCMOS and FD-SOI beamforming ICs, antenna-on-chip and antenna-in-package solutions, and the packaging and thermal challenges that arise as the frequency moves towards the sub-THz range. Design examples and measured results from recent K/Ka-band and mmWave demonstrators illustrate the trade-offs, and the talk closes with an outlook on the open problems that 6G NTN deployments will have to solve.

Bio: Luigi Boccia is Associate Professor of Electromagnetic Fields at the Department of Informatics, Modeling, Electronics and Systems Engineering (DIMES) of the University of Calabria, where he leads the mm-wave Antennas and Integrated Circuits Laboratory (MAIC-Lab). His research addresses millimetre-wave and sub-THz antennas, SiGe BiCMOS and FD-SOI integrated circuits, phased arrays and reconfigurable transmitarrays for satellite communications and non-terrestrial networks. He is co-founder and COO of Antecnica, a spin-off of the University of Calabria, and serves as Associate Editor of IEEE Microwave and Wireless Technology Letters and of the International Journal of Microwave and Wireless Technologies. He is an IEEE MTT-S Distinguished Microwave Lecturer for 2026.

Organizer

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