THE CHINESE UNIVERSITY OF HONG KONG
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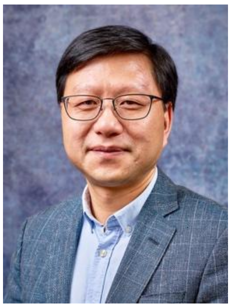
Seminar



Next Generation RF Power Amplifiers: Efficiency and Linearity Challenges

Professor Anding Zhu

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University College Dublin, Ireland

Date: **December 11, 2025 (Thursday)**
Time: **10:00 am – 11:15 am**
Venue: **Room 222, 2/F, Ho Sin Hang Engineering Building, CUHK**

Abstract

Radio frequency (RF) power amplifiers (PAs) are key components in almost all wireless transmitters, ranging from tiny sensors and mobile devices to high-power cellular base stations. Their essential function is to convert DC power into amplified RF signals, ensuring reliable wireless transmission. With 6G networks expected to support ultra-high-speed communications, massive IoT connectivity, and immersive user experiences, PAs must overcome critical challenges in energy efficiency, broadband operation, and linearity, particularly under high peak-to-average power ratios and dynamic traffic conditions. This talk discusses the major obstacles and emerging solutions in next-generation PA design. It will cover advanced PA architectures, novel device technologies such as GaN MMICs, operation in new frequency ranges (e.g., FR3), and the application of AI-driven optimization techniques. Approaches for linearity enhancement, tighter system integration, and cross-layer co-design will also be highlighted. By linking theoretical advances with practical implementations, the talk provides insights into the development of PA technologies capable of meeting the stringent efficiency and performance requirements of future wireless networks, paving the way toward a more sustainable and connected future.

Biography

Anding Zhu received the Ph.D. degree in electronic engineering from University College Dublin (UCD), Ireland, in 2004, where he is currently a Full Professor in the School of Electrical and Electronic Engineering. His research interests include high-frequency nonlinear system modelling, device characterization, high-efficiency RF power amplifier design, and nonlinear system identification algorithms. He has published more than 200 peer-reviewed journal and conference papers. Prof. Zhu is an IEEE Fellow. He is currently the President-Elect of the IEEE Microwave Theory and Technology Society (MTT-S) and will serve as President in 2026. He was a Track Editor of the IEEE Transactions on Microwave Theory and Techniques from 2020 to 2022 and received the 2021 IEEE MTT-S Microwave Prize.

***** ALL ARE WELCOME *****

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