Politecnico di Torino

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ELECTRICAL, ELECTRONICS AND COMMUNICATIONS ENGINEERING

PNRR - High efficiency amplification for 5G millimeter wave propagation environments

Funded By	MINISTERO DELL'UNIVERSITA' E DELLA RICERCA [P.iva/CF:97429780584] Politecnico di TORINO [P.iva/CF:00518460019]
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Context of the research activity	5G technologies broadband requirements push toward the exploitation of the millimeter wave frequency range. On the other hand, worldwide attention toward environmentally friendly technologies is demanding for system with increasingly high efficiency. In this context the Power Amplifier (PA), feeding the antenna in the transmission phase, represents the most energy consuming module of the high frequency transceiver. Therefore, a well-conceived design of a PA, both concerning frequency and efficiency behavior is a key factor to pursue green 5G compliant systems. PNRR M4C2, Investimento 1.3 - Avviso n. 341 del 15/03/2022 - PE0000001 RESearch and innovation on future Telecommunications systems and networks, to make Italy more smart (RESTART) - CUP E13C22001870001
Objectives	The proposed PhD research aims at investigating innovative amplification architectures, intrinsically capable of high efficiency conversion, based on the most recent semiconductor materials suitable for the millimeter wave range. The augmented efficiency will also allow for reducing weight and size of the transponder with beneficial environmental impact.
Skills and competencies for the development of the activity	Qualified knowledge of EDA softwares for high frequency design. Linear and non-linear microwave electronics basics. Knowlege on high frequency characterization of electronic cirtcuits. Basics on active device physics and modelling.