Special Issue

High-Performance RF Power Amplifiers: The Advancement of GaN, Si, and CMOS for Future Communications

Message from the Guest Editor

he explosive growth of next-generation wireless systems, including 5G, 6G, and beyond, drives advancements in RF power amplifier (PA) technologies. PAs are key in RF front-end modules. This Issue explores RF PAs using GaN, Si, and CMOS technologies. GaN devices offer superior power, efficiency, and frequency capabilities for 5G base stations and high-power uses. Si and CMOS RF PAs offer integration and cost benefits for mobile and IoT. Recent efforts focus on improving linearity, efficiency, and thermal management. This Issue invites contributions on PA architectures, linearization, power-combining, broadband performance, thermal design, and packaging innovations. We welcome research bridging theory and practice.

- GaN-based high-efficiency RF PAs
- CMOS RF PAs for mobile and IoT
- Thermal management for high-power PAs
- Broadband and multiband PA architectures
- Linearity enhancement and digital pre-distortion
- Doherty, outphasing, and envelope tracking techniques
- Power-combining and load modulation networks
- Integration of PAs with antenna arrays
- PA reliability, packaging, and EMI considerations
- Emerging PA solutions for 5G, 6G, and beyond

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Electronics is a multidisciplinary journal designed to appeal to a diverse audience of research scientists, practitioners, and developers in academia and industry. The journal is devoted to fast publication of latest technological breakthroughs, cutting-edge developments, and timely reviews of current and emerging technologies related to the broad field of electronics. Experimental and theoretical results are published as regular peer-reviewed articles or as articles within Special Issues guest-edited by leading experts in selected topics of interest.

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