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Intelligent Massive-MIMO Systems and Wireless Communications

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Message from the Guest Editors

The deployment of the fifth-generation (5G) networks has already starting taking place, aiming to provide improved data rates to mobile users, higher spectral and energy efficiency, as well as coverage in harsh propagation conditions. To this end, two key novel technologies in the physical layer include the deployment of a very large number of transmitting antennas to access points, also known as massive multiple input multiple output (m-MIMO), as well as the use of millimeter-wave transmission; however, conventional beamforming techniques with a dedicated radio frequency (RF) chain per transmitting antenna cannot be directly applicable in m-MIMO topologies, as this would significantly increase hardware and computational complexity. In this context, an alternate approach is based on the use of an RF chain for a specific group of transmitting antennas while their phases are controlled by the analog part. Recent studies have shown that the performance of this sub-optimal architectural approach, also known as hybrid-beamforming, can nearly reach the performance of fully digital m-MIMO configurations.



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Special Issue



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Message from the Editor-in-Chief

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