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# Sensors and Digital Modulation in Modern Life: Antenna Design and Massive MIMO Systems

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## **Message from the Guest Editor**

Dear Colleagues,

In recent years, Massive MIMO techniques have received considerable research interest from both academia and industry and are being employed as a key enabling technology for 5G more and mre often and are the subject of intensive research investigations for the upcoming 6G system in order to achieve those requirements. However, the aesthetic needs and size restrictions that require the antenna arrays to become smaller have introduced some serious drawbacks. To combat the mutual coupling effects, the antenna research community has introduced numerous techniques that utilize artificial materials, special signal filtering designs, and many others techniques. These designs are mainly focused on traditional MIMO systems. Therefore, it is mandatory to develop cost-effective antenna arrays operating in the sub-6 GHz and millimeter wave bands region to deploy increasing numbers of antennas in fixed physical space for both the base station and user terminals, including antennas installed on vehicular platforms.

This Special Issue addresses all types of antenna arrays designed for Massive MIMO systems at the base station and/or user terminals and their performance metrics.













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