

Special Issue

Advancements and Applications of UAV Communications with RF, Microwave, and mmWave Techniques

Message from the Guest Editor

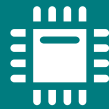
Unmanned Aerial Vehicles have emerged as pivotal tools across various industries, ranging from the military and surveillance to agriculture and disaster management. This Special Issue explores the recent advancements and applications of UAV communications, focusing on the integration of Radio Frequency, microwave, and millimeter-wave techniques. The evolution of communication technologies has significantly enhanced UAV capabilities, enabling robust and reliable data transmission for real-time surveillance, remote sensing, and collaborative mission execution. This SI delves into the challenges and opportunities associated with employing RF, microwave, and mmWave frequencies for UAV communication, addressing issues such as signal attenuation, interference, and bandwidth constraints. Furthermore, it highlights innovative solutions and engineering strategies that leverage these frequency bands to optimize communication performance, extend operational ranges, and enhance data transfer rates. The applications discussed encompass a wide array of sectors, including agriculture, environmental monitoring, disaster response, and communication relay in areas with limited infrastructure.

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