Special Issue

Next-Generation Indoor Wireless Communication

Message from the Guest Editors

More than 80% of wireless traffic takes place indoors; however, substantial research is still needed in this area. First, indoor wireless channel must be investigated carefully as building structures have a significant impact on in-building wireless networks, e.g., blockage, reflection, diffraction, etc. Second, short-range communication techniques, such as ultra-dense small cell networks, mmwave/Terahertz communications, near-field MIMO system, etc., have great potential to further enhance indoor wireless networks. Third, building material with integrated wireless devices, e.g., reconfigurable intelligent surface, transparent antennas and concrete embedded antennas, is promising to eliminate negative consequences on weight, space, and visual impact of wireless infrastructure. Fourth, complex indoor radio propagation brings challenge to indoor wireless sensing in the emerging integrated sensing and communication system. Finally, building wireless performance, as a new concept that bridges the gap between wireless communications and building design communities, provides an efficient pathway to enhance indoor wireless in the building design stage.

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