

Call for Papers

Intelligent-Green Space-Air-Ground Integrated Networks (IG-SAGIN)

The 22nd International Conference on Wireless Communications and Mobile Computing

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Scope

The rapid evolution of space-air-ground integrated networks (SAGINs) has become a cornerstone for future 6G and beyond communication systems, enabling ubiquitous connectivity, global sensing, and resilient information exchange across satellite, aerial, and terrestrial segments. SAGINs are required to support massive connectivity, low latency, and stringent energy efficiency targets. As battery-operated nodes become increasingly prevalent in remote and embedded environments—typical scenarios in SAGINs—the demand for ultra-low-power radio links has intensified, driving active research into communication strategies that maximize energy efficiency without compromising communication reliability. Noise-based communication (NBC) has emerged as a promising energy-efficient paradigm, wherein information is embedded within the intrinsic statistical properties of noise rather than the amplitude/phase/frequency of sinusoidal waves in traditional communications. Moreover, NBC systems exploit random noise waveforms for information transmission, offering low probability of detection, low probability of interception, and anti-jamming capabilities. For these advantages, NBC holds strong potential for secure, energy-efficient, and reliable communications in SAGIN environments, and has started to draw attention from the global researchers. Besides, green communications have been emerged as an important area of concern for communication research and industrial communities. It is important to design high energy-efficient approach for green SAGIN due to this energy-limited network. The advanced techniques, such as reconfigurable intelligent surfaces (RIS), fluid-antenna system (FAS), movable antennas, simultaneous wireless information and power transfer (SWIPT), energy harvesting, integrated sensing and communications, AI-driven wireless access solutions, resource allocation and mobile edge computing can be used and/or combined to improve the energy efficiency in SAGIN, and obtain high-efficient green communication.

Against this background, this workshop will focus on cutting-edge NBC technologies and energy-efficient approaches, and explore novel theories, architecture, and implementations for their applications in SAGINs.

Topics

Accepted papers will be published in the IEEE IWCMC 2026 proceedings and will be submitted to the IEEE digital library (IEEE Xplore). Authors are welcome to submit original papers (not published before and/or simultaneously to another venue) with topics that include but are not limited to:

- Fundamentals and information theory of noise-based communication (NBC)
- Channel modeling of NBC in space, aerial, and ground segments
- Modulation/waveform/receiver design for NBC
- Noise-aided covert/secure transmission for space-air-ground integrated networks (SAGINs)
- Channel estimation and synchronization techniques for NBC
- Multiple access/antennas techniques for NBC
- Noise-aided THz/mmWave communication for SAGIN
- Coded noise waveforms for SAGINs
- Green SAGINs with emerging channel reconfigurable technologies (e.g., reconfigurable intelligent surfaces, fluid-antenna systems, movable antennas, and pinching-antenna systems)
- Integrated sensing and communications/OTFS/AFDM for SAGIN
- Energy harvesting and SWIPT for SAGIN
- Mobile edge computing and precoding design for SAGIN
- Cross-layer design and resource allocation in heterogeneous SAGIN environments
- AI-driven wireless access solutions for energy-efficient design in SAGIN (e.g., dynamic beamforming and tracking, channel state information feedback, and multi-dimensional resource decision-making)
- Machine learning and AI-driven detection, estimation, and classification of noise-like signals
- Hardware implementation and testbeds for secure and green SAGINs.

Submitted papers are encouraged to address novel technical challenges or industrial and standard aspects of the key technologies for sustainable and secure cognitive buildings/cities.

Important Dates

Same deadlines as the main conference dates.

Note: Within this workshop, there will be one Best Paper Award.