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## IEEE Open Journal of Vehicular Technology

## Special Issue on

## 6G Intelligent Communications

As the 5G transits from standardization to deployment, the research community and the industry have initiated discussions on the vision and plan for 6G communications. On the one hand, 5G technologies have their own inherent limitations and may not be sufficient to address the new challenges arising from the emerging wireless applications that require ultra-low latency, very large spectrum and energy efficiency, massive number of connections and smart reconfigurable wireless environment. On the other hand, some of the technologies proposed in the 5G will necessarily involve into 6G, along with other technologies for wireless connectivity. According to the industry vision, 6G is anticipated to be an integrated network of full-band including low-frequency to terahertz, and fully integrated scenarios including satellite, space, UAV, terrestrial, and underwater communications. As such, research for innovative, spectral and energy efficient, and yet cost-effective solutions for future 6G wireless networks is imperative.

Another important and widely spread hypothesis is that Artificial Intelligence will be deeply integrated with the 6G communication systems and networks. Artificial Intelligence may have a significant impact at all layers, ranging from the physical layer (channel coding and decoding, channel estimation), cross-layer design such as resource allocation, network architecture planning, and up to integration with the applications. As a result, Artificial Intelligence will be a key feature and one of the main drivers of 6G intelligent communications. In addition, some new emerging technologies such as intelligent reflecting surface (IRS), blockchain and mobile edge computing will be parts of 6G networks. It can be imagined that the integration of 6G with robotics, intelligent manufacturing,

intelligent driving, aerospace, marine engineering and other fields will lead to a completely intelligent world underpinned with connectivity.

The objective of this special issue is to solicit latest and original research contributions to define the 6G vision and key 6G technologies. The topics of interest include, but are not limited to:

- Modulation and coding technologies
- Full duplex technologies
- Multiple access techniques
- Protocols and algorithms for massive access
- Mobile edge computing
- Cache enabled communications
- Cell-free communications
- Terahertz and mmWave Communications
- Air-space-ground-underwater integrated networks
- UAV communications
- Blockchain and AI for communication security
- Software defined networks and network virtualization
- Holographic and AR/VR communications
- Cognitive and green communications
- Intelligent reflecting surface
- Machine learning-based wireless communications
- Machine learning-based network architecture
- Intelligent Vehicular Networks
- Deep learning for mobile communication systems and networks
- Internet-of-things connectivity

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