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Special Section: Personal Satellite Systems

The prominence of satellite communications and its niche roles in facilitating global connectivity and remote sensing have long been recognised and exploited. The use of satellites has grown beyond inceptive applications in international telephony and TV program distribution and broadcast to embrace other key areas. Navigation; assets tracking and management; remote sensing and imaging of the Earth for military and civil purposes; extension of broadband communications (including high speed Internet access) to domains outside the reach of terrestrial infrastructure, such as offshore facilities for the oil and gas industries, people on the move in the air and at sea as well as those in remote, rural, undeveloped, inhospitable or disaster-stricken locations; backhaul and transit connection services for telecom operators and Internet Service Providers (ISPs); these are just a few of the many modern applications of satellite communications.

In recent years there has been an exponential rise in global demand for broadband communication to portable units and small handheld devices such as smart phones. At the same time interest has grown in the realisation of smart homes and cities, driverless vehicles, connectivity amongst functional items and assets, the so called Internet of Things (IoT), etc. Wireless and satellite communication capabilities must therefore be prepared for the coming data transmission deluge serving a growing population of users and vast arrays of sensor devices and IoT. Meeting this need into the foreseeable future in order to fulfil the dream of 'broadband anytime, anywhere on earth' requires bold new thinking to devise innovative solutions to major challenges in terrestrial and satellite mobile networks design and implementation. Some of these challenges include super-efficient utilisation of radio spectrum, security and reliability, use of radio spectrum above Ka-band and dealing effectively with the attendant increased propagation impairments, designing intelligent link-adaptable transmitters, building high throughput satellite (HTS) systems with capacities approaching one terabit per second (Tbps), interference mitigation, delivering broadband services in extreme-latitude regions that are invisible to geostationary satellites, energy efficiency and resource management, latency, and so on. This Special Issue aims to bring together high quality new research addressing the challenges of developing personal satellite systems to enable a truly ubiquitous broadband future. It is a forum for researchers and developers within academia and industry to present their new work to a global audience and to propose innovative techniques and solutions that advance the state of the art in personal satellite systems. Original contributions are welcome addressing the above challenges through hardware design, signal processing, channel & system modelling, and new protocols, architectures and applications of fundamental theory.

Particular topics of interest include, but are not limited to:

- High throughput satellite (HTS) systems architecture
- Bandwidth efficient techniques, modulation and coding for satellite links
- Smart antennas
- Interference detection and mitigation
- Propagation modelling on non-GEO links
- Security and reliability
- MIMO for satellite links
- Terminal design
- Use of radio frequencies above Ka band and energy-efficient fade mitigation techniques
- Radio resource management and dynamic spectrum sharing
- Satellite support for Internet of Things
- Broadband in extreme latitudes
- Latency issues, throughput and QoS support
- Earth observation systems
- IP over satellite, and heterogeneous networks
- Advances in payload subsystems

All submissions are subject to the journal's peer-review procedures. The authors should follow the journal's Author Guide at **http://digital-library.theiet.org/journals/joe/author-guide** and indicate clearly that the paper is submitted to the Special Section on Personal Satellite Systems. All submissions will be screened by the Guest Editor to ensure an appropriate match to the theme of the Special Section, but submissions not meeting the criterion can still be considered for inclusion in the journal.

Important dates:

Submission deadline:
15 Oct 2015

Publication date:
Apr 2016

For enquiries regarding this Special Section please contact the Guest Editor or the Managing Editor:

Guest Editor:
Ifiok Otung
University of South Wales
E: ifiok.otung@southwales.ac.uk

Managing Editor:
Eleanor Gendle
E: egendle@theiet.org

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Contact us:

The Journal of Engineering
IET Research Journals Dept.
Michael Faraday House
Six Hills Way
Stevenage
SG1 2AY
United Kingdom

Eleanor Gendle, Managing Editor (The Journal of Engineering)
T: +44 (0)1438 767318
E: joe@theiet.org

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