

Commission D

Session	Title	Convener names & e-mails	Number of slots
D01	Photonic Signal Processing, Real-time Instruments and Biomedical Imaging	Hossein Asghari, Masayuki Suzuki, Chao Wang, Mohammadhossein.Asghari@lmu.edu	10
<p>In many applications the phenomena of interest occur on time scales too rapid and at throughputs too high to be captured in real time. Photonic real-time instruments are the promising candidates for this severe problem, they are capable of operating on signals at Terahertz speeds. The aim of this session is to bring researchers specialized in real-time instruments, optical bioinstrumentation, big data management, and high-speed signal processing together in a single multidisciplinary forum. With the presentations of the latest developments, this session is intended to serve as a platform to promote idea exchanges, interdisciplinary collaborations, and technological advancements in this new and exciting field.</p>			

Session	Title	Convener names & e-mails	Number of slots
D02	Near Field Wireless Power Transfer	Giuseppina Monti, Alessandra Costanzo, giuseppina.monti@unisalento.it, alessandra.costanzo@unibo.it,	8
<p>The session will focus on near field wireless power transfer based on either inductive or capacitive coupling. Aspects related to both specific applications and theoretical analysis will be addressed. As per the possible network configurations, starting from the simplest case of SISO (Single Input Single Output) systems, the session will also deal with the more general case of a MIMO (Multiple Input Multiple Output) configuration.</p>			

Session	Title	Convener names & e-mails	Number of slots
D03	Far-Field Wireless Power Transfer and Energy Harvesting	Naoki Shinohara, Jiafeng Zhou, shino@rish.kyoto-u.ac.jp, Jiafeng.Zhou@liverpool.ac.uk	8
<p>This session covers theory and technology of a far-field wireless power transfer via radio waves or via laser from a transmitter and energy harvesting from ambient radio waves. Novel theory and technologies which contain antenna/propagation, active/passive circuit, and solid state, etc, from VHF/UHF and microwave to optical frequency, will be presented in this session.</p>			

Session	Title	Convener names & e-mails	Number of slots
D04	Substrate Integrated Circuit for 5G and Beyond	Maurizio Bozzi, Ke Wu maurizio.bozzi@unipv.it, ke.wu@polymtl.ca	8
<p>The substrate integrated circuit (SIC) technology represents a good candidate to implement complete systems at millimeter wave frequency, particularly suited for 5G applications and beyond. The convened session will highlight the most advanced results in the area of SIC, ranging from components and antennas to integration strategies for complete systems, with particular attention on design techniques, technological issues, and integration solutions.</p>			

Session	Title	Convener names & e-mails	Number of slots
D05	RFID and backscatter communication and sensing technologies	Smail Tedjini, Simone Genovesi, smail.tedjini@lcis.grenoble-inp.fr, simone.genovesi@unipi.it	8
<p>With the advent of IOT and AI the need of very low-power wireless solutions is rapidly increasing. Due to their passive feature, Backscatter and RFID technologies are the most suitable and effective in term of power consumption and rapid implementation. This session intends to cover the recent advances in backscatter techniques and their potential in terms of new functionalities such as sensing and localisation.</p>			

Session	Title	Convener names & e-mails	Number of slots
D06	Antennas and electronics for wearable, epidermal and implantable devices	Gaetano Marrocco, Luciano Tarricone, gaetano.marrocco@uniroma2.it, luciano.tarricone@unisalento.it	8
<p>The session will highlight the progress on antennas and devices for integration in clothes, flexible and/or stretchable antennas and electronics for direct application over the skin and beneath the skin, antennas and electronics for soft robotics, miniaturized antennas and electronics for integration into implanted prothesis and ingestible capsules, wireless power transfer for body sensor networks and new antennas and radio-electronics for emerging 5G wearable devices.</p>			

Session	Title	Convener names & e-mails	Number of slots
D07	Chipless RFID	Etienne Perret, Filippo Costa, etienne.perret@lcis.grenoble-inp.fr, filippo.costa@unipi.it	8

The need for information identification and capture is a matter of prime importance in modern societies. Every sector of society relies on the identification of data exchange, the updating of the data recorded on a tag and the measurement of physical parameters. The way to reduce power consumption, improve the communication quality-of-service and enhance connectivity has become key issues for lots of industries. Researchers need to consider the multiple factors simultaneously to design state-of-the-art RF devices for the next generation of identification services. One important direction is to develop low-power, low cost tags for wireless identification and sensing. Lots of improvements have been done today on communication systems based on electronic devices where an integrated circuit is at the heart of the whole system. However, these improvements pave the way for the development of new concepts based on approaches where the presence of the chip is not mandatory. These approaches are based on radar or reflectometry principles; these are non-invasive techniques but they require specific theoretical and practical developments. The difficulty is to be able to retrieve a small signal coming from a totally passive label placed in an unknown and movable environment. The topic of this session is to introduce the paradigm of RF communication system based on chipless labels, i.e. tags without any chip, bringing an ID, able to communicate with radio waves and having extremely low costs.

Session	Title	Convener names & e-mails	Number of slots
D08	Integrated Terahertz Electronic and Photonic Devices and Systems	Tadao Nagatsuma, Ho-jin Song nagatuma@ee.es.osaka-u.ac.jp	8

This session covers recent progress in integration technologies for THz devices and systems, which are considered as a substantial trend towards wide utilization and commercialization of THz technologies. State-of-the-art technologies will be presented from component-level to system-level integration with monolithic and hybrid approaches using electronics and photonics

Session	Title	Convener names & e-mails	Number of slots
D09	Microwave and photonic subsystems for Beyond 5G/6G communications	Atsushi Kanno, Kosuke Nishimura kanno@nict.go.jp, nish@kddi-research.jp	8
<p>5G communication systems have posed challenging requirements in the underlying microwave and photonic subsystems as well as antennas due to concepts such as massive MIMO requiring a very large amount of independent antenna and transceiver circuits. Due to the large bandwidth requirement photonic subsystems are especially suitable for 5G/6G communications as well as electronics and antennas in the millimeter wave frequency bands. The session presents recent advances in electronics and photonics for 5G/6G communications.</p>			

Session	Title	Convener names & e-mails	Number of slots
D10	Plasmonics and metamaterials	Dimitrios Sounas, Christos Argyropoulos dsounas@wayne.edu, christos.argyropoulos@unl.edu	8
<p>Plasmonics and metamaterials have been proven ideal platforms for controlling the spatial and temporal properties of light. This session aims to cover the most important advances in this area, including plasmonic metamaterials for beam steering, focusing, LDOS and optical nonlinearities enhancement, sensing, non-reciprocity, parity-time symmetry and other emerging applications in the same area.</p>			

Session	Title	Convener names & e-mails	Number of slots
D11	100 Year Anniversary of URSI: Commission D, electronics and photonics	Smail Tedjini, Apostolos Georgiadis, smail.tedjini@lcis.grenoble-inp.fr, apostolos.georgiadis@ieee.org	7
<p>The session highlights significant technological advances and breakthrough research areas that have emerged within the recent history of Commission D and that are expected to emerge in the recent future from the viewpoint of past and present Commission D Chairs and worldwide known experts in the field of Electronic and Photonics.</p>			

Session	Title	Convener names & e-mails	Number of slots
D12	Open session	Apostolos Georgiadis and Naoki Shinohara, apostolos.georgiadis@ieee.org, shino@rish.kyoto-u.ac.jp	10
Advances and breakthroughs in the fields of Electronics and Photonics and cross-disciplinary fields such as microwave photonics and optical electronics, as well as contributions related to electronics and photonics exploring advances in related fields such as nanotechnology, metrology and additive manufacturing.			

Regarding the joint sessions:

DA1 : Meas. and Instr. Technologies for mm and THz waves by Prof. Hisatake and Prof. Kajita

DK1 : Bio effects and EM interfer. of wireless power transfer by Prof. Hikage, Prof. Chakarothai and Prof. De Santis

DK2 : Wearable and Textile antenna for WBAN by Prof. Ukkonnen, Prof. Tarriconne and Prof. Rogier

have also given me the OK and confirmed that they will be reorganizing them during GASS2021.