電気電子工学委員会URSI分科会
エレクトロニクス・フォトニクス小委員会
（第25期・第３回）

議　事　要　旨

１．日　時　　令和４年９月１日（木）１３：１５～１４：００
２．会　場　　ハイブリッド開催
　　現地会場：中央大学後楽園キャンパス5号館
　　遠隔会議：ZOOM
３．出席　篠原、保立、伊藤、楳田、川西、菅野、塚本、戸田、永妻、冨士田、寶迫、吉本（敬称略）（１２/１７）
４．議　題
（１）議事要旨の提出に関する委員長一任について
（２）URSI JRSM2022 の報告
（３）URSI General Assembly 2023 @ 札幌 の現状について
（４）25 期 URSID 小委員会の 2022 年度の活動について
（５）その他

５．配布資料
資料１：Brain Storming of Sessions for GASS2023_2

６．議事

（１）出席の25期委員自己紹介が行われた。
（２）議事要旨の提出に関する委員長一任について
日本学術会議のガイドラインに基づき、議事要旨を委員長に一任することとなった。
（３）URSI JRSM2022の報告
9/1-2で開催中のJRSM2022のCommission Dの論文投稿状況について説明があった。残念なことにSPCに応募していた学生が当日欠席になったことが報告された。
（４）URSI General Assembly 2023 @ 札幌 の現状について（資料1）
・資料1に基づき、URSI GA2023@札幌のCommission Dのsessionの準備状況について説明があった。
・今日現在2つのsession proposalの締め切りを通過したが、特にURSI本部からremindがなく、実質の締め切りは10/5のfinal deadlineであろうと報告された。
・資料1(別紙)の各sessionとconvenersにつき、ステータス(confirmされているのか、just ideaなのか等)の確認を行った。その結果、資料1(別紙)の赤字はconvenersが

confirmされていることを確認した。

・残るconfirmされていないsessionやconvenersについて、引き続き確認していくことが確認された。日本のcontributionが期待されてはいるか、convenersには海外の先生も期待されていると議論した。

・GASS2023において現chair篠原は任期終了、現vice chair菅野氏が次期chairに昇格すると報告された。またECR2名のうち、1名はGASS2023で新任されるため、次期ECRに日本の立候補があると良い、と話があった。

（４）25期URSID小委員会の2022年度の活動について

・この先1年間はGASSの成功が本小委員会の最大のミッションであるとの話があった。小委員会は次回は来年の春先に実施されるであろうと、予定の紹介があった。

（文責 篠原）

以上

Draft Idea of Sessions in GASS2023 (discussion result in CCA meeting in May 31st)

Chair : Naoki Shinohara

(別紙)

Commission D

Session	Title	Convener names & e-mails	Number of slots
D01	Electronic devices, circuits and systems for THz communications	Kyoya Takano, Shinsuke Hara ktakano@rs.tus.ac.jp, s-hara@nict.go.jp	8
Electronics is an essential technology for today's wireless communications, and its importance will not change for THz wireless communications towards beyond 5G/6G. This session covers electronic components, circuits and systems for THz wireless communications. The topics include electronic devices such as high-speed transistors and diodes, component circuits such as amplifiers, multipliers, local oscillators (LO), LO distribution networks, and transceiver systems. This session also seeks challenges such as THz beamforming using electronics.			

Session	Title	Convener names & e-mails	Number of slots
D02	Advanced technologies for underwater wireless systems	Yoshihisa Takayama, Tomoyuki Miyamoto yoshihisa.takayama@tokai.ac.jp, tmiyamot@pi.titech.ac.jp	8
The scope of human activities has been expanded to underwater environments, including the oceans, in addition to space and terrestrial areas. To fully utilize the underwater environments, it is essential to apply the wireless technologies as on the ground in the fields of communications, sensing, and power transmission. This session aims to contribute to the acquisition of knowledge on underwater wireless technologies to develop the application systems by understanding the propagation characteristics of acoustic, radio frequency, and optical waves in water and sharing the latest research results from the fundamental progresses to the demonstration experiments.			

Session	Title	Convener names & e-mails	Number of slots
D03	Electronics and photonic systems for vehicular applications	Atsushi Kanno, TBD Kanno.atsushi@nitech.ac.jp, TBD A/I Kanno	8
TBD			

Session	Title	Convener names & e-mails	Number of slots
D04	Microwave/millimeter-wave/THz and photonic systems for Beyond 5G/6G communications	Isao Morohashi, Hwang-Seok Chung morohashi@nict.go.jp, chung@etri.re.kr	8
The session covers a wide range of research areas toward Beyond 5G/6G, from novel photonic based device to wireless system technologies. It seeks original contributions focusing on the novel device and subsystem performance of those photonic network elements that rely on optical and photonic/microwave photonic techniques. The topics in this session include active and passive high speed photonic devices, photonic generation of microwave, millimeter and THz waves, signal processing, photonic subsystems (radio over fiber, free space optic), THz device and communications and its related technology.			

Session	Title	Convener names & e-mails	Number of slots
D05	Near Field WPT	Qiaowei Yuan, Tohoku Inst. Tech., Japan Seungyoung Ahn, KAST, Korea, qwyuan616@tohtech.ac.jp , sahn@kaist.ac.kr	8
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. (TBD)			

Session	Title	Convener names & e-mails	Number of slots
D06	Far-Field Wireless Power Transfer and Energy Harvesting	Yi Huang, Univ. of Liverpool, UK , Naoki Shinohara, Kyoto Univ., Japan Yi.Huang@liverpool.ac.uk, shino@rish.kyoto-u.ac.jp	8
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. (TBD)			

Session	Title	Convener names & e-mails	Number of slots
D07	Photonic Signal Processing, Real-time Instruments and Biomedical Imaging	Hossein Asghari, Masayuki Suzuki, Chao Wang Mohammadhossein.Asghari@lmu.edu	8
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.			

Session	Title	Convener names & e-mails	Number of slots
D08	Harmonic Transponders	Valentina Palazzi valentina.palazzi@unipg.it Smail Tedjini smail.tedjini@lcis.grenoble-inp.fr	8
Harmonic transponders are attracting ever more attention due to their sensitivity and robustness to clutter. These transponders are based on very simple architectures, which make them suitable for operating even in harsh environments and in remote areas. Extended studies are currently being carried out to leverage harmonics to convey useful information (such as identification or sensing). Other studies focus on further improving the transponder sensitivity and on increasing its read range. These advances make transponders based on harmonic backscattering a promising approach for future IoT solutions. This session aims to provide a broad overview of the most recent advances and current challenges in this area, and to promote synergies and collaborations among researchers interested in the topic.			

Session	Title	Convener names & e-mails	Number of slots
D09	Energy Harvesting for IoT	Kyriaki Niotaki kyriaki.niotaki@telecom-paris.fr Valentina Palazzi valentina.palazzi@unipg.it	8

Session	Title	Convener names & e-mails	Number of slots
D10	Optical Communications	Koyama 先生に相談, Keio 津田先生??	8

Session	Title	Convener names & e-mails	Number of slots
D11	Applications of Photonics in Biomedical Applications		8

Session	Title	Convener names & e-mails	Number of slots
D12	Recent Advances in Electronics and Photonics (Open Session	Naoki Shinohara, Kyoto Univ., Japan, Atsushi Kanno, Nagoya Inst. Tech., Japan shino@rish.kyoto-u.ac.jp, kanno.atsushi@nitech.ac.jp	8
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.(TBD)			

Session	Title	Convener names & e-mails	Number of slots
D13	Built-in Self-test for telecommunication systems	Federico Alimenti federico.alimenti@unipg.it Valentina Palazzi valentina.palazzi@unipg.it	8
5G and 6G wireless communication hardware and millimeter-wave sesnors (radar, radiometers, etc.) are becoming more and more complex and, often, represent the critical elements of systems that are not allowed to fail. Built-in self test of RF apparatuses is an emerging research and engineering field, that is aimed at integrating the measurement devices within such a critical hardware. This not only will enable for the continuous monitoring of apparatuses during their operational life, but will considerably reduce the testing cost during production. The present session ia aimed to provide a review of the state-of-the-art of Built-In Self Test for telecommunication systems, discrete component hardware and fully integrated (on-chip) solutions.			

Session	Title	Convener names & e-mails	Number of slots
KD1	Smart Body Area IoT (BAIoT)	K-Anzai	8

Session	Title	Convener names & e-mails	Number of slots
D1x	Electronic and photonic technologies for electromagnetic field measurement and their applications	Hiroshi Murata, Yusuf Nur Wijayanto murata@elec.mie-u.ac.jp, yusu008@brin.go.id	8
Advanced radio services including mobile communications, high-precision radar systems, and body sensing require high-precision and low-invasive electromagnetic-wave measurement techniques. Small dielectric antenna can reduce the perturbation effect to the electromagnetic field to be measured. Photonics-based electromagnetic field measurement is also the promising solution from the viewpoint of broadband radio frequency capability and large separation between sensor heads and processors by optical fiber networks. This session will focus on the device and subsystem technologies for electromagnetic field measurement using electronic and photonic technologies. Also, the application study and use case of their technologies will be discussed in the session.			

~~1. Photonic Signal Processing, Realtime Instruments & Biomedical Imaging~~
~~Hossein Asghari, Masayuki Suzuki, Chao Wang, Mohammadhossein.Asghari@lmu.edu~~
~~(from GASS2021)~~

~~2. Microwave and photonic subsystems for Beyond 5G/6G communications~~

3. Cyber security of electronic equipment

4. Navigator Satellite and GNSS system/receiver

~~5. Underwater system (communication, sensing, etc.)~~

~~6. In-vehicle technology~~

~~7. IoT wireless sensing / active wireless sensors~~
~~Ricardo Correia, Univ. of Aveiro, Portugal, Valentina Palazzi, Univ. of Perugia, Italy~~

8. Electronics and photonics for quantum applications

~~9. Near Field Wireless Power Transfer~~
~~— Qiaowei Yuan, Tohoku Inst. Tech., Japan~~

~~10. Far-Field Wireless Power Transfer and Energy Harvesting~~
~~— Yi Huang, Univ. of Liverpool, UK~~
~~Naoki Shinohara, Kyoto Univ., Japan~~

~~11. Recent Advances in Electronics and Photonics (Open session)~~
~~— Naoki Shinohara, Kyoto Univ., Japan, Dr. Atsushi Kanno, NICT, Japan~~

12. Optical telecom (with C??)

13. Terahertz Metasurface (with B?)
Dimitrios Sounas and Christos Argyropoulos, dsounas@wayne.edu, cargyropoulos2@unl.edu
(from GASS2021)

~~14. KD-01 Smart Body Area IoT (BAIoT) (with K)~~
~~Session confirmed, but convener not yet.~~

WS : RFID Technologies and Privacy of Data ???
Organizers: S. Tedjini, France, smail.tedjini@lcis.grenoble-inp.fr
G. Marrocco, Italy, marrocco@disp.uniroma2.it

WS : Photonics??

Tutrial 集積光デバイス -> ハーバード

[Reuse from GASS2021]
1. Substrate Integrated Circuit for 5G and Beyond
2. RFID and backscatter communication and sensing technologies
3. Antennas & electronics for wearable, epidermal & implantable devices
4. Chipless RFID
5. Integrated Terahertz Electronic and Photonic Devices and Systems
6. Plasmonics and metamaterials
7. Open session – Electronics and Photonics

[Reuse from AT-AP-RASC2022]
1. Harmonic Transponders
2. Photonics and electronics for space applications

[Need negotiation with the other commissions (from GASS2021 + alpha)]
1. Meas. and Instr. Technologies for mm and THz waves (with Com. A)
2. Metasurfaces-enabled polarization control (with Com. B)
3. Multiphysics modelling in radio frequency nanoelectronics (with Com. B)
4. THz Communications (with Commission C)
5. Bio-effects and EM interference of wireless power transfer (with Com. K)
6. Wearable and Textile antenna for WBAN (with Com. K)

[Tutorial, Workshop, Short Cause, etc]
We need to propose.

- Important Deadlines for GASS2023 -

July 10, 2022	Deadline Preliminary list of sessions from Commissions
August 31, 2022	Deadline Finalized list of sessions from Commissions that should
October 5, 2022	Deadline Submission of proposals on sessions, workshops, and short courses