

# Report on GASS Commission Business Meetings

## Commission A (URSI GASS 2017)

### 1. Elections of Commission Officers

It appeared the former Vice Chair, Dr. Patrizia Tavella, cannot become the incoming Chair because of her new commitment to an international organization. To resolve this situation, a vote was conducted by the representatives from URSI Member Committees who were present at the 1st Business Meeting among the 6 candidates (a past chair, a former chair, four nominees of incoming Vice Chair) following the suggestion from the URSI Board. As the results, the former chair, Dr. Yasuhiro Koyama, was selected and was recommended to the Council Meeting later on August 24. After the election of the incoming Chair, usual elections of incoming Vice Chair and Early Career Representative (ECR) were conducted. Dr. Pedro Miguel Cruz, who became the ECR in 2014 with the term of 6 years, agreed to continue his commitment as an ECR. As the results, Prof. Nuno Borges Carvalho was selected as a candidate of the incoming Vice Chair, and Dr. Noshewan Shoaib was selected as a candidate of the ECR. All of these recommendations were then approved by the Council on August 24. In addition to the incoming Vice Chair, and ECRs, Dr. Tian Hong Loh volunteered to become Associate Editors of Radio Science Bulletin (RSB).

### 2. Review of Terms of Reference

The Terms of Reference of the Commission A was reviewed during the 2nd Business Meeting and some changes were proposed and agreed. The revised Terms of Reference were then submitted to the Council and were approved for the triennial term of 2017-2020. The new Terms of Reference are as the following.

#### **Commission A on ELECTROMAGNETIC METROLOGY, Electromagnetic measurements and standards.**

The commission promotes research and development of the field of measurement standards and physical constants, calibration and measurement methodologies, improved quantification of accuracy, traceability, and uncertainty, and the inter-comparison of such. Areas of emphasis are:

1. the development and refinement of new measurement techniques and calibration standards
2. primary standards, including those based on quantum phenomena, and the realization and dissemination of time and frequency standards
3. characterization of electromagnetic properties of materials, physical constants, and properties of engineered materials, including nanotechnology

4. methodology of electromagnetic dosimetry/measurements for health diagnostics, applications, and biotechnology, including bio-sensing
5. measurements in advanced communication systems, space metrology and other applications, including antenna and propagation measurement techniques

The commission fosters the best practices and training for accurate and consistent measurements needed to support research, development, and exploitation of electromagnetic technologies across the spectrum and for all commissions.

### **3. Working Group**

Following the discussions at Business Meeting in GASS2014, a Working Group for Education and Training has been set up. The name and the Terms of Reference of the Working Group were introduced and new members were solicited. Before the GASS2017, the status of the Working Group was ad-hoc, but it was formally established at the GASS2017.

#### **Name of the Working Group**

Working Group for Education and Training

#### **Terms of Reference**

Electromagnetic metrology attracts students and trained specialists from a wide variety of fields, such as biophysics, electrical engineering, health sciences, materials science, physics, radio science, and statistics. The purpose of this Working Group is to promote the education of both students and actively working professionals by collecting information about available training resources on the techniques and fundamental principles involved in the work of Commission A, and to promote education in metrology by disseminating the information gathered and making it available on a public web page.

#### **Members**

Demetrios Matsakis (Chair), Charles Bunting, William Davis, Tian Hong Loh Alreza Motevasselian, Patrizia Tavella, Yasuhiro Koyama, and Amitava Sen Gupta

### **4. Technical Advisory Committee**

The Technical Advisory Committee of the Commission A was created at the time of GASS2014 following a suggestion by the Board. 21 individuals joined the committee responding to the solicitation. The committee was very helpful in the process of organizing AT-RASC2015, AP-RASC2016, and GASS2017. It was proposed to continue the committee and members will be solicited again from the scratch after the GASS2017, and this proposal was agreed. The list of members of the Technical Advisory Committee for the new triennial term of 2017-2020 is shown in Appendix 1.

## 5. Preparation of Future Meetings

In the process of organizing GASS2017, the members of Technical Advisory Committee were asked for suggestions of sessions and each member was asked to convene at least one session. The same approach was proposed for the GASS2020 and this proposal was agreed. The list of sessions for AT-RASC2018 was discussed and the list of special sessions with conveners were proposed. After the GASS2017, the coordination of the AT-RASC2018 sessions was continued and finalized (see Appendix 2).

### Appendix 1: Commission Officials and Members of Technical Advisory Committee.

Chair: Yasuhiro Koyama, National Institute of Information and Communications Technology, Japan ([koyama@nict.go.jp](mailto:koyama@nict.go.jp))

Vice-Chair: Nuno Borges Carvalho, University of Aveiro, Portugal ([nbcarvalho@ua.pt](mailto:nbcarvalho@ua.pt))

ECR: Pedro Cruz, Controlar, Portugal ([pedro.cruz@controlar.pt](mailto:pedro.cruz@controlar.pt))

Noshewan Shoaib, National University of Sciences and Technology, Pakistan ([noshewan.shoaib@seecs.edu.pk](mailto:noshewan.shoaib@seecs.edu.pk))

RSB Associate Editors :

Nuno Borges Carvalho, University of Aveiro, Portugal ([nbcarvalho@ua.pt](mailto:nbcarvalho@ua.pt))

Pedro Cruz, Controlar, Portugal ([pedro.cruz@controlar.pt](mailto:pedro.cruz@controlar.pt))

Noshewan Shoaib, National University of Sciences and Technology, Pakistan ([noshewan.shoaib@seecs.edu.pk](mailto:noshewan.shoaib@seecs.edu.pk))

Tian Hong Loh, National Physical Laboratory, UK ([tian.loh@npl.co.uk](mailto:tian.loh@npl.co.uk))

Technical Advisory Committee :

Felicitas Arias, BIPM, France ([farrias@bipm.org](mailto:farrias@bipm.org))

Nuno Borges Carvalho, University of Aveiro, Portugal ([nbcarvalho@ua.pt](mailto:nbcarvalho@ua.pt))

Pedro Miguel Cruz, CONTROLAR, Portugal ([pedro.cruz@controlar.pt](mailto:pedro.cruz@controlar.pt))

Yasuhiro Koyama, NICT, Japan ([koyama@nict.go.jp](mailto:koyama@nict.go.jp))

Chen Kunfeng, The 41st Institute of CETC, China ([ckf-006@163.com](mailto:ckf-006@163.com))

Demetrios Matsakis, United States Naval Observatory, USA ([demetrios.matsakis@usno.navy.mil](mailto:demetrios.matsakis@usno.navy.mil))

Rowayda Sadek, Helwan University, Egypt ([rowayda\\_sadek@yahoo.com](mailto:rowayda_sadek@yahoo.com))

Dominique Schreurs, KU Leuven, Belgium ([Dominique.Schreurs@esat.kuleuven.be](mailto:Dominique.Schreurs@esat.kuleuven.be))

Amitava Sen Gupta, The NorthCap University, India ([sengupta53@yahoo.com](mailto:sengupta53@yahoo.com))

Noshewan Shoaib, National University of Sciences and Technology, Pakistan ([noshewan.shoaib@seecs.edu.pk](mailto:noshewan.shoaib@seecs.edu.pk))

Patrizia Tavella, INRIM, Italy ([tavella@inrim.it](mailto:tavella@inrim.it))

Emmanuel Van Lil, KU Leuven, Belgium ([Emmanuel.VanLil@esat.kuleuven.be](mailto:Emmanuel.VanLil@esat.kuleuven.be))

Steven Weiss, Army Research Lab, USA ([sweiss7@jhu.edu](mailto:sweiss7@jhu.edu))

## Appendix 2: Proposed Sessions and Conveners for AT-RASC2018.

### Regular Session Topics

- A.1 Antenna and Propagation Measurement Techniques
- A.2 Measurements in Advanced Communication Systems
- A.3 Characterization of Electromagnetic Properties of Materials
- A.4 Properties of Engineered Materials including Nanotechnology
- A.5 Physical Constants
- A.6 Primary Standards
- A.7 Realization and Dissemination of Time and Frequency Standards
- A.8 Methodology of Electromagnetic Dosimetry
- A.9 Measurements for Health Diagnostics, Applications and Biotechnology, including Bio-sensing
- A.10 Space Metrology
- A.11 Calibration, Traceability, and Inter Comparisons of Instruments and Measurements
- A.12 Quantification of Accuracy and Uncertainty
- A.13 Other

### Special Session Topics and Conveners

- S-A1 - Time Scale and Frequency Standards (Conveners : A. Sen Gupta, M. Gertsvolf)
- S-A2 - Calibration and Dissemination of Standards (Conveners : A. Sen Gupta, M. Gertsvolf)
- S-A3 - Re-definition of SI Electromagnetic Units (Conveners : F. Arias, C. Williams)
- S-A4 - Precision Geolocation, Navigation and Timing (Conveners : D. Matsakis, P. Cruz)
- S-A5 - Characterization and Measurements for 5G and beyond (Conveners : N. B. Carvalho, T. H. Loh)
- S-A6 - Characterization for Automotive Systems and Radar (Conveners : N. B. Carvalho, P. Cruz)
- S-A7 - Antenna and Antenna System Measurements (Conveners : S. Weiss, C. Wang)
- S-A8 - Instrumentation and Measurement Techniques for Nano-Devices (Conveners : N. Shoaib, I. Shoaib)
- S-A9 - mm-Wave and Terahertz Instrumentation and Measurement Techniques (Conveners : N. Shoaib, I. Shoaib)
- S-A10 - Massive MIMO and OTA Test and Calibration for 5G (Conveners : T. H. Loh, Y. Koyama)
- S-A11 - Education and Training in Electromagnetic Metrology (Conveners : S. Weiss, D. Matsakis)
- S-AC (Joint Session of Commissions A and C) - Radio Channel Sounding and Channel Modeling (Conveners : T. H. Loh, J. Quimby)
- S-AE (Joint Session of Commissions A and E) - Mode Stirred Chambers (Conveners : L. Arnaut, T. H. Loh)
- S-EACFJ (Joint Session of Commissions E, A, C, F, and J) – Spectrum management and utilization (Conveners: J. Borrego, N. Carvalho)