



Report on the Business Meetings of

Commission A

during the

**XXXth URSI General Assembly and Scientific
Symposium**

Istanbul, Turkey, August 13-20, 2011

Chair: Dr. William. Davis, Virginia Tech, Blacksburg, Virginia

Vice Chair: Dr. Yasuhiro Koyama, National Institute of Information and Communications Technology, Koganei, Japan

1. Memorium – Professor Leschiutta

The members of the Italian URSI Italy were notified of the death of Prof. Siegfried Leschiutta, former Chairman of the Commission A in 2011. Roberto Sorrentino of the Italian URSI reported from the news "Anyone who has had the pleasure and honor to know him, has been impressed by the originality of his bright and brilliant mind and by his frank, honest and strict nature. We will miss him as a researcher and as a man". In the Commission A meeting, Dr. P. Banerjee offered a eulogy for Prof. Leschiutta and a short moment of silence for this respected leader of the community.

2 Election of new Vice Chair

The vote for the vice chair of Commission A was very close with Dr. Yasuhiro Koyama of Japan elected to the position. Dr Demetrios Matsakis of the US Naval Observatory offered was a strong competitor and is thanked for his participation.

3. URSI Radio Science Bulletin Associate Editors

Two associate editors were selected to provide improved input to the Radio Science Bulletin. Dr. Banerjee volunteered to continue service to URSI in this role and will team with the Vice Chair, Dr. Koyama, in this role.

A major review paper on the Rotman Lens was published by Weiss and Kilic. Additional papers are in the works from members of the Greek URSI as well as the United States URSI.

4. Discussion of Council Issues

The report of the Long Range Planning Committee was reviewed, but not discussed at length. During this triennium, the Long Range Planning Committee (LRPC), under the chairmanship of Prof. P. Cannon, was quite active through discussions with respective chairs of commissions. The following emerging topics were identified as a focus for Commission A: a) Development of quantum standards; b) GNSS timing systems; c) Nano-metrology; and d) Effects of EM waves on the eco-system (man and environments). The primary technical domain of the commission remains instrumentation and measurement, however with strong support of the measurement concepts needed by other commissions. There should be an emphasis on the social aspects of science and technology and also on navigation. The secondary areas of commission focus are well recognized as antennas, propagation, electromagnetic compatibility, electron devices and systems, laser & electron optics, magnetics, microwave theory and techniques, and optics and optical technology.

There was some discussion of the viability of URSI white papers. To make them meaningful, they should really be distributed beyond URSI once they are approved. That would help URSI be recognized worldwide as a leader in technological concepts and ideas for the future. Related discussion dealt with a short discussion of the importance of URSI and its' relevance to the current world order. URSI needs to be providing a greater contribution to science. The three-year gap between the GASS meetings does not help in the recognition of URSI in the world community. The support of interim meetings and the wider distribution of white papers would help with this visibility.

This discussion led to the issue of hosting technical meetings between the GASS years. It was felt that creating new meetings was not wise when we already have too many meetings. However, several alternatives were suggested: 1) Cosponsor technical meetings being offered by other related groups, such as the IEEE MTT or I&M societies. Some of this support already exists on a country basis, such as the joint IEEE AP-S / URSI meetings typically held in the USA every summer. The IEEE AP-S has found it hard to establish meetings elsewhere due to the existence of other organizations hosting in those regions, and has become inclined to co-sponsor meetings instead; 2) Offer limited topical meetings with a focus on 3rd world countries; and 3) Offer URSI special topic sessions at existing conferences.

There was some discussion of the need for the listserv as mentioned in the Council meetings. It appears that Council has set up commission listservs to complement those that may already exist separately for the commissions.

The Young Scientists were asked to provide feedback about their experiences and how that can be improved in the future. Of particular interest are any suggestions they have for making URSI more relevant to the world today. Some suggestions included URSI considering social networking with a presence in Wikipedia and Facebook, possibly LinkedIn.

Beijing, China was selected for the 2014 GASS from 13-30 August 2014.

5. GASS Session Structure

The issue of attracting folks to the URSI GASS felt may be strongly related to the structure of the meeting. New participants typically end up in poster sessions. It is felt as though this is saying to new individuals that URSI is a good-old-boys network and you have to work your way in, rather than feeling welcome up front. This network feeling is inherent in the mostly invited oral-session structure of the meeting. Several alternatives were discussed, though many felt that the invited structure was necessary base on their country experience, while others felt just the opposite. The alternatives include the following: 1) Have a combination of invited and open sessions. The open sessions would be formed from groupings of the papers submitted as actually was done to fill some of the slots at the 2011 GASS. The open sessions should be based on a recommended list of topics that is easily revised as the emerging areas develop; 2) For some commissions it may be worth considering more parallel sessions rather than simply more posters; 3) There was general support for a nominal registration with each submission to reduce the number of no-shows; 4) There was not much discussion of the need to send an

invitation letter indicating no funding available to each corresponding author (as a PDF file); and lastly 5) it may be a draw to specific topics to have them as open sessions, but with a keynote presentation.

A new idea discussed briefly was the establishing of a plenary session with keynote speeches much as already done, but with the added feature of the final student presentations to determine the order of the top three student awards.

6. Paper Reviews for the GASS

It was felt that having a reviewing team or at least additional reviewers for the GASS paper submissions would improve the review process. In some cases it did not appear that the conveners did any review or even pursued paper submissions, while others simply need a second review to confirm the quality of the papers that are desired for the meeting. To go toward a more open structure that is more appealing to first time presenters, it is suggested that a combination of sessions be considered: invited sessions as currently done, special sessions with a keynote speaker, and open sessions formed from the remaining papers submitted and divided by relevant areas.

7. New Terms of Reference

Commission A - 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, and traceability, and the intercomparison of such. Areas of emphasis are:\

- (a) The development and refinement of new measurement techniques and calibration standards
- (b) Primary standards, including those based on quantum phenomena, and the realization and dissemination of time and frequency standards
- (c) Characterization of the electromagnetic properties of materials, physical constants, and the properties of engineered materials, including nanotechnology
- (d) Methodology of electromagnetic dosimetry and measurements for health diagnostics, applications, and biotechnology: including biosensing
- (e) Measurement validity in advanced communication systems and other applications

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

8. Topics for Future GASS Meetings

Potential topics for future assemblies were listed. This list is not closed, but provides a basis for the next meeting. The basic topic list is as follows: Meas/Cal for Remote Sensing; Propagation Meas standards; Sliding correlators, indoor, MIMO, and diversity; Space plasma measurement techniques; Materials: metamaterials, liquids, nanomaterials, wideband engineered materials; Antenna & Field Measurement; Short Pulse measurements; RFID; Wireless Application Antenna Measurements; Biological effects (SAR, HAC, pattern, Z, exposure); Signal enhancement for EM Metrology; Circuit measurements – nonlinear, harmonics; Scattering cal and standards; Optical Techniques; and Freq cal and stability. There are several review or emerging area topics: Basic Measurement Concepts – a Review and Measurements of Physical Quantities: methodology, improved accuracy, traceability. New areas of emerging technology include: Health and climate; Targeted programs: a) Fundamental physical constants, optical stds/freq comparisons; b) Health: diagnostics, therapy, biotech; c) Mechanics including nanotechnology; and d) EM including nanotechnology.

These topics provide an opportunity to join with commissions B, D, E, and K. There is a strong possibility of a joint session with D on optical standards, as well as temperature and other aspects of physical constants.

Invited topics might include:

- Nonlinear microwave device measurements
- Measurement uncertainty

- Nonometrology or Nanoantennas
- Pulsars (follow up to this GASS)

9. Paper Summary

There were 120 oral papers and 8 poster papers presented as part of the Commission A activites. Of these, there were joint session with commissions B(4), C(2), D(3), E(1), F(3) and K(1). There were 10 student papers submitted, of which 2 were related to commission A. A special thanks goes to S. Giblin form the National Physical Laboratory of the UK for his tutorial on “Electron Pumps and Re-definition of the SI Unit Ampere.” Overall, there was excellent participation in commission A, though there were some selected no-shows.

10. Closure

Dr Davis on behalf of members of Commission A thanked all participants for their excellent cooperation and all speakers for their participation in Commission A sessions. A special thanks was also given to Dr. Banerjee for his effort not only as the chair of Commission A during the last triennium, but as the interim chair during the previous triennium. He has indeed done extra duty in his service to URSI and Commission A.