

Commission D: Electronics and Photonics - Electronique et Photonique

Chair: Pr. Peter Russer

Vice Chair: Dr. Frédérique de Fornel

Report from the New Delhi General Assembly

Commission D Business meetings were held by Pr. Peter Russer (Chair) on the following two days:

Meeting 1: Monday, October 24th, 18:00-19:30

Meeting 2: Wednesday, October 26th, 18:00-19:00

The following issues were discussed and decided upon.

1- Triennial Activity for 2002 – 2005.

Pr. Peter Russer reported on:

1. The growing importance of wireless and optical communication technology has led to continued strong interest in the activities of Commission D, “Electronics and Photonics”.

Commission D has continued the successful policy of providing technical co-sponsorship to a number of meetings of interest to Commission D while focusing financial sponsorship on the established International Symposium on Signals Systems and Electronics, ISSSE, jointly sponsored with Commission C. For this triennium we also provided financial sponsorship to the 2004 Asia-Pacific Radio Science Conference (AP-RASC'04).

2004 International Symposium on Signals, Systems and Electronics (ISSSE'04) in Linz, Austria

- The 6th International Symposium on Signals, Systems, and Electronics, ISSSE 2004, was held in Linz, Austria on August 10-13, 2004. ISSSE is an international symposium held once every three years. This symposium is organized and sponsored by the International Union of Radio Science (URSI), Commissions C and D.
- After the review of nearly 130 submissions, 89 were accepted for presentation. Authors came from more than 20 countries, thereof 63% from Europe, 29% from Asia, and 8% from North America. During the symposium two best papers have been awarded.

The following conferences were supported by Commission D:

1. MMET'02, Int. Conf. on Mathematical Methods in Electromagnetic Theory, Kiev, Ukraine, 10-13 September 2002,
2. Getting the Most out of the Radio Spectrum, London, U.K., 24-25 October 2002,
3. ISMOT 2003 - 9th Int. Symp. On Microwave and Optical Technology, Ostrava, Czech Republic, 11-15 August 2003,
4. 11th MICROCOLL, Budapest, Hungary, 10-11 September 2003,
5. CAOL 2003, Int. Conference on Advanced Optoelectronic and Lasers, Alushta, Crimea, Ukraine, 16-20 September 2003,
6. Telecom 2003 & JFMMA, Marrakech, Morocco, 15-17 October 2003,
7. MSMW'04, Fifth Int. Kharkov Symposium on Physics and Eng of Microwaves, Millimeter- and Submillimeter-Waves, Kharkov, Ukraine, 21-26 June 2004,

8. ISSSE'04, International Symposium on Signals, Systems and Electronics, Linz, Austria, 10-13 August 2004
9. AP-RASC 04: 2004 Asia-Pacific Radio Science Conference, Beijing, China, 20-23 August 2004,
10. ISMOT 2005 - 10th International Symposium on Microwave and Optical Technology, Fukuoka, Japan, 22-25 August 2005,
11. CAOL 2005, Int. Conference on Advanced Optoelectronic and Lasers, Yalta, Crimea, Ukraine, 12-17 September 2005,

2. New Chair and Vice Chair for 2005-2008

Election of the new Vice-Chair

Two candidates were presented :

- Franz Kaertner
Full Professor
Department of Electrical Engineering and Computer Science
M.I.T., Cambridge, MA, U.S.A.

- Hiroyo Ogawa
Director of Yokosuka Radio Communication Research Center, National Institute of Information and Communications Technology

Voting was held for the incoming Commission D Vice-Chair 2005 – 2008. The successful candidate was.

Franz Kaertner

3. Appointment of Commission D Editor for Review of Radio Science

URSI Publication

Commission D Editor for RRB will be, Prof. F. Kaertner(incoming Vice-Chair)

4. Appointment of Commission D Associate Editor for Radio Science Bulletin

Editor RSB 2005-2008 will be Pr S. Tedjini

5. Terms of Reference

The Terms of Reference were reviewed and discussed.

Considering:

1. That nanoscale devices and quantum devices are of growing interest in research;
2. That this development has to be considered in the terms of reference of the Commission D.
3. That the complete spectrum of frequencies from low frequencies up to the optical region has to be considered.

Resolve

1. That the terms of reference have to be modified on item (c) after “electronic and photonic devices” in adding: *down to nanoscale including quantum devices* has been added; and
2. That the expression *covering all frequencies, including those in the microwave and optical domains*

has been replaced by *from the low frequencies to the optical domain*.

The new terms of reference shall be (changes marked in italic):

The Commission promotes research and reviews new development in:

- (a) Electronic devices, circuits, systems and applications;
- (b) Photonic devices, systems and applications;
- (c) Physics, materials, CAD, technology and reliability of electronic and photonic devices *down to nanoscale including quantum devices*, with particular reference to radio science and telecommunications.

The Commission deals with devices for generation, detection, storage and processing of electromagnetic signals together with their applications *from the low frequencies to the optical domain*.

In french :

Termes de référence de la Commission D

Les nouveaux termes de référence devraient être : (changements indiqués en italique):

La Commission tend à promouvoir les recherches et à faire le point des nouveaux développements dans les domaines suivants :

- (a) Dispositifs électroniques, circuits, systèmes et applications;
- (b) Dispositifs photoniques, systèmes et applications;
- (c) Physique, matériaux, CAO, technologie et fiabilité des dispositifs électroniques et photoniques *jusqu'à l'échelle nanométrique incluant les dispositifs quantiques* présentant un intérêt particulier pour la radioélectricité scientifique et les télécommunications.

La Commission étudie les dispositifs pour la production, la détection, le stockage et le traitement des signaux électromagnétiques, ainsi que leurs applications *des basses fréquences au domaine optique*.

6. Scientific Program of Next General Assembly

Next General Assembly 2008:

Paper submission was discussed and agreed upon, that a centralized electronic submission and review system be used. It was also agreed on that a one time submission of a paper (up to four pages), plus an abstract in the specified format, be used in the program.

Few scientific sessions were proposed for the next general assembly

- Nanoelectronics and Nanophotonics.
- Nanovacuum technology
- Joint commission on SPS
- Terahertz technology
- Metamaterials
- Joint session D-A-B(?)-C(?) simulation and characterization of mixed signals
- Microwave Photonics
- Reconfigurable surfaces
- RFIDs Radio Frequency Identifier

- Organic Devices
- UWB Components

7. White Paper on Solar Power Satellites

The commission D studied the report on the Solar Power Satellites. The problems of this technology open many fields of study for electronics and the photonic one.

It gives an opinion favorable for the deepening of this technology and the publication of this White Paper.