



TRIENNIAL REPORT 2011-2014 of COMMISSION D

This document provides the activity of the commission D during the triennium 2011-2014. It reports the main international conferences and workshops that received technical sponsorship of financial support from the commission. The report provides also the scientific program scheduled for the next General Assembly and Scientific Symposium to be held at Beijing 18-23 August 2014. Finally some activities of national commission are reported.

1. OFFICERS OF THE COMMISSION D

During the period 2011-2014 the officers of commission D are :

Chair : Smail TEDJINI, Prof @ Grenoble-inp, France,
smail.tedjini@grenoble-inp.fr

Vice-Chair Dr. Günter Steinmeyer, Max-Born-Institute, Berlin, Germany,
steinmey@mbi-berlin.de

Past-Chair : Prof. Franz X. Kärtner, MIT, USA ,
kaertner@mit.edu

2. TERMS OF REFERENCE OF THE COMMISSION D

Commission D is dedicated for Electronics and Photonics. In more detail, the reference terms approved during the last GASS of Istanbul in 2011 was defined as follows:

The Commission promotes research and reviews new development in:

- Electronic devices, circuits, systems and applications;
- Photonic devices, systems and applications;
- 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. Green technologies are also considered.

3. EVOLUTION OF TOPICS IN COMMISSION D

As observed during this triennium 2011-2014, important topics like Nano-electronics, Nano-photonics, Meta-material and THz continue to growth in term of interest and applications. Several sessions of the GASS2014 are dedicated to these topics. By the way, the tutorial of commission D is dedicated to THZ technologies. On the other hand, modeling and simulation techniques applied to complex and heterogeneous circuits and systems have seen several advances driven by the progress in computer science and high performance computing systems. This topic is shared with commission B.

Besides these conventional subjects there are new topics that appeared or continue to gain in importance within the commission. The most significant are related to

- Wireless devices such as RFID and Sensors
- Energy Harvesting and battery-less technologies (it is important to note that one of the general lectures of GASS2014 is dedicated to Energy Harvesting and was



proposed by commission D). Moreover, for the first time one session is dedicated to that topic within the program of the commission.

- Green technologies

It is worth to remark that these topics interest several other commissions in particular B and C. This fact is very relevant and clearly visible in the content of joint sessions DB, DC, and also DBC at least for GASS 2014. It is expected that this trend continue to progress and evolve to more joint sessions and topics.

4. Supported Conferences and Workshop

The commission has received several requests for either technical or financial sponsorship. Each request has been considered and positively agreed when the topic of the event has connection with the terms of commission D.

In total 17 sponsorships have been delivered including one financial support to AP-RASC 2013. The list of these events is provided hereafter:

Year	Event	Type of support
2011	ICEAA-APWC 2011, Torino, Italy, 12-17 September 2011	Tech
2012	AES 2012, Paris, France, 16-19 April 2012	Tech
2012	META'12 - 3rd International Conference on Metamaterials, Photonic Crystals and Plasmonics, Paris, France, 16-19 April 2012	Tech
2012	International School of Physics "Enrico Fermi", Metrology and Physical Constants, Varenna, Italy, 17-27 July 2012	Tech
2012	ICEAA - International Conference on Electromagnetics in Advanced Applications, Cape Town, South Africa, 2-8 September 2012	Tech
2012	ISSSE 2012, Potsdam, Germany, 3-5 October 2012	Tech
2012	IEEE International Conference on RFID-Technology and Applications 2012, Nice, France, 5-7 November 2012	Tech
2013	META'13 - the 4th International Conference on Metamaterials, Photonic Crystals and Plasmonics, Sharjah-Dubai, U. A. Emirates, 18-22 March 2013	Tech
2013	AES 2013, the 2nd Advanced Electromagnetics Symposium, Sharjah-Dubai, United Arab Emirates, 19-22 March 2013	Tech
2013	MSMW '13 - 8th International Kharkov Symposium on Physics and Engineering of Microwaves, Millimeter and SubMillimeter Waves, Kharkiv, Ukraine, June 23 -28, 2013	Tech
2013	AP-RASC'13 - 2013 Asia-Pacific Radio Science Conference, Taipei, China SRS, 3-7 September 2013	Fin
2013	ICMAP 2013, Int Conf on Microwaves and Photonics, Dhanbad, India, 13-15 December 2013	Tech
2014	Regional Conference in Radio Science, Pune, India, 2-5 January 2014	Tech
2014	RADIO 2014 - Radio and Antenna Days of the Indian Ocean, Mauritius, 7-10 April 2014	Tech
2014	EMC'2014, Tokyo, Japan, 13-26 May 2014	Tech



2014	ICEAA - IEEE APWC conference, Aruba, 3-9 August 2014	Tech
2014	Metamaterials 2014, Copenhagen, Denmark, 25-28 August 2014	Tech

Tech = Technical Support,

Fin = Financial support

5. THE CALL FOR PAPER FOR GASS 2014

After the meeting of the coordinating committee of April 2013, the call for paper has been published. The deadline was Feb 15, 2014. All the scheduled sessions approved by commission D received enough papers. We received 164 papers, which is 20% larger than the commission received in 2011. These are papers for commission D only. There are also 100 papers submitted for joint sessions managed by commissions B or C. Hereafter are the numbers of submissions for the sessions managed by commission D.

Technical Topic	Submitted (o,p,e)	Draft	Withdrawn	Total
Commission D				
D01,02: Micro and Nanophotonics	<u>11</u> (9,1,1)	0	<u>2</u>	13
D03: New frontiers and applications of optical fibers	<u>10</u> (9,1,0)	0	<u>1</u>	11
D04: Network Oriented Modeling of Electromagnetic Fields and Microwave Structures	<u>12</u> (12,0,0)	0	<u>1</u>	13
DBC01: Energy Harvesting in Wireless Systems	<u>6</u> (5,1,0)	0	<u>3</u>	9
D05: Trends in RFID, from Identification to sensing	<u>12</u> (12,0,0)	0	0	12
DC01: Broadband Ubiquitous Network with Wired and Wireless convergence	<u>9</u> (8,1,0)	0	<u>2</u>	11
DB01: RF MEMs and NEMS	<u>4</u> (3,0,1)	0	0	4
DT: Tutorial D:	<u>1</u> (1,0,0)	0	0	1
DA01: Quantum Optics, Quantum Information, Quantum Precise Measurement and Quantum Metrology	<u>10</u> (3,3,4)	0	<u>1</u>	11
D06: Nonlinear Optics and Guided Wave Devices	<u>5</u> (4,0,1)	<u>1</u>	0	6
D07: Hybrid and monolithic digital-RF integrated Circuits	<u>5</u> (4,0,1)	0	0	5
DB02: Plasmonics	<u>6</u> (3,1,2)	0	0	6
DBC02: Signal Processing Antenna	<u>14</u> (6,2,6)	0	<u>1</u>	15
DB03,04: Multiphysics Modelling in Radio Frequency Nanoelectronics	<u>9</u> (8,0,1)	0	0	9
D08: THz systems and applications	<u>9</u> (8,1,0)	0	0	9
DFC01: Trends in THz Communications	<u>6</u> (4,0,2)	0	0	6
D09,10: 60GHz Electronics	<u>8</u> (7,0,1)	0	<u>1</u>	9
Other Topics (D)	<u>12</u> (8,3,1)	0	<u>2</u>	14
Total	149(114,14,21)	1	14	164



6. THE SESSIONS OF COMMISSIONS D FOR GASS 2014

As presented in the previous section the call for paper was successful and therefore the program was organized in sessions scheduled from Monday 13 to Saturday 18 August.

Hereafter are listed the sessions, dates and the conveners.

Session ID	Session Name	Day	Time	Location	Session Chairs
D01	Micro and Nanophotonics (1)	Monday, August 18	08:00-09:20	Commission D	Franz X Kärtner Mike Watts
D02	Micro and Nanophotonics (2)	Monday, August 18	9:40-11:00	Commission D	Franz X Kärtner Mike Watts
D03	New frontiers and applications of optical fibers	Monday, August 18	13:40-15:40	Commission D	Stefano Selleri
D04	Network Oriented Modeling of Electromagnetic Fields and Microwave Structures	Monday, August 18	19:00-20:40	Commission D	Peter Russer Yury Kuznetsov
D05	Trends in RFID, from Identification to sensing	Tuesday, August 19	9:40-12:00	Commission D	GAETANO MARROCCO Smail Tedjini
D06	Nonlinear Optics and Guided Wave Devices	Wednesday, August 20	19:00-20:40	Commission D	Stefano Selleri
D07	Hybrid and monolithic digital-RF integrated Circuits	Thursday, August 21	08:00-09:20	Commission D	Achour Ouslimani Krishna Busawon
D08	THz systems and applications	Friday, August 22	13:40-15:40	Commission D	Jean-Louis Coutaz Taiichi Otsuji
D09	60GHz Electronics (1)	Saturday, August 23	08:00-09:20	Commission D	Kiat Seng YEO Kaixue Ma
D10	60GHz Electronics (2)	Saturday, August 23	9:40-10:40	Commission D	Kiat Seng YEO Kaixue Ma
DA01	Quantum Optics, Quantum Information, Quantum Precise Measurement and Quantum Metrology	Wednesday, August 20	13:40-15:40	Commission D	Guo Hong
DB01	RF MEMs and NEMS	Wednesday, August 20	08:00-09:20	Commission D	Roberto Sorrentino Fabio Coccetti
DB02	Plasmonics	Thursday, August 21	9:40-12:00	Commission D	Frédérique A de Fornel Nader Engheta
DB03	Multiphysics Modelling in Radio Frequency Nanoelectronics (1)	Friday, August 22	08:00-09:20	Commission D	Peter Russer Wenquan Che
DB04	Multiphysics Modelling in Radio Frequency Nanoelectronics (2)	Friday, August 22	9:40-10:40	Commission D	Peter Russer Wenquan Che
DBC01	Energy Harvesting in Wireless	Tuesday,	08:00-	Commission	Apostolos Giorgiadis



	Systems	August 19	10:00	D	Luciano Tarricone
DBC02	Signal Processing Antenna	Thursday, August 21	13:40-15:40	Commission D	Yvan Duroc Alexander Yarovoy Yuan Yao
DC01	Broadband Ubiquitous Network with Wired and Wireless convergence	Tuesday, August 19	13:40-15:40	Commission D	Katsutoshi Tsukamoto Yuichi Kado Katsumi Iwatsuki
DFC01	Trends in THz Communications	Friday, August 22	19:00-21:00	Commission D	Tadao Nagatsuma Ci-Ling Pan Thomas Kuerner
DP1	DP1-Poster Session	Tuesday, August 19	19:00-21:00	Commission D	Mike Watts Franz X Kärtner G. Steinmeyer
DP2	DP2-Poster Session	Thursday, August 21	19:00-21:00	Commission D	Smail Tedjini Apostolos Giorgiadis
DT	Tutorial D:	Wednesday, August 20	9:40-10:00	Commission D	Smail Tedjini

7. THE JOINT SESSIONS WITH OTHER COMMISSIONS

Hereafter are the joint sessions mainly with commission B and C.

Session ID	Session Name	Day	Time	Managing commission	Session Chairs
AD01	Metrology of Optical Frequencies and Optical-Dimensional Measuring Techniques (1)	Tuesday, August 19	08:00-09:20	Commission A	Josef Lazar Juraj Poliak
AD02	Metrology of Optical Frequencies and Optical-Dimensional Measuring Techniques (2)	Tuesday, August 19	9:40-11:00	Commission A	Juraj Poliak Josef Lazar
BCD01	Reconfigurable Antennas for Cognitive Radio	Friday, August 22	19:00-20:40	Commission B	Agostino Monorchio Karu Esselle
BCD02	Emerging Wireless Technologies (1)	Saturday, August 23	08:00-09:20	Commission B	Smail Tedjini Paolo Nepa
BCD03	Emerging Wireless Technologies (2)	Saturday, August 23	9:40-10:40	Commission B	Jun-ichi Takada Sana Salous
BD01	Recent Advances in Metamaterials	Tuesday, August 19	9:40-12:00	Commission B	Christophe Caloz
BD02	Advanced Computational Techniques for Multi-Scale and Multi-Physics Electromagnetics	Wednesday, August 20	19:00-20:40	Commission B	Weng Cho Chew Jin-Fa Lee
BD03	General topics in electromagnetic scattering	Thursday, August 21	08:00-09:20	Commission B	Ismo V Lindell Ivan V. Andronov



CBDK01	Body-Area Networks(1)	Thursday, August 21	08:00- 09:20	Commission C	Kamya Yekeh Yazdandoost
					Raffaele D'Errico
CD01	Circuit Technologies for Mobile Communications	Monday, August 18	19:00- 20:40	Commission C	Shoichi Narahashi
					Ke Wu
CD02	Ultra-high bit rate radio communications (TeraHertz and 60 GHz) (1)	Friday, August 22	08:00- 09:00	Commission C	Cyril Renaud
					Tadao Nagatsuma
					Thomas Kuerner
CD03	Signal Processing for radar systems	Friday, August 22	9:40- 10:40	Commission C	Cyril Renaud
					Tadao Nagatsuma
					Thomas Kuerner

8. CONTACT WITH NATIONAL COMMISSIONS

During this triennium several information and requests have been sent to the national chairs of local commissions D. Unfortunately there are several errors and missing in the provided mailing list. It is necessary to clean and update this list.

In several countries there are national URSI organizations and meetings in particular the commissions D. As examples, annual national events are organized in France, Italy and Germany and certainly in other countries. To inventory these national events 1 page report and summary for national commission activity has been sent to all the national chairs but only few responses have been received.

Responses have been received from

*Belgium
China
Czech
France
Italy
Poland
Russia
United Kingdom*

These reports are attached at the end of this document.



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COMMISSION D Electronics & Photonics	Country BELGIUM	Estimated Number of members: 15
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CHAIR

Title	Given Name	Last Name	
Professor	Peter	Van Daele	
Email	Peter.vandaele@intec.ugent.be		
Institution name	Ghent University – INTEC Dept.		
Full Address	Gaston Crommenlaan 8 box 201		
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VICE-CHAIR (no Vice-Chair!)

Title	Given Name	Last Name	
NA	NA	NA	
Email	NA		
website	Phone	Fax	
NA	NA	NA	

Main Activities

- Participation at URSI Belgium meetings. These meetings are a combination of administrative meetings and scientific meetings during which a technical presentation is given in the field of 1 of the 10 URSI Commissions. There are no specific meetings solely for Commission D (or any other Commission).
- Participation at URSI Benelux Forum, which is a regional event for PhD students. The 2012 edition was organised by Peter Van Daele.
- Participation at URSI meetings in general.

5 Major Publications

<http://www.ursi.be/>



COMMISSION D Electronics & Photonics	P.R.CHINA	Estimated Number of members
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CHAIR

Title	Given Name	Last Name
Prof.	Hong	Guo
Email	hongguo@pku.edu.cn	
Institution name	Peking University	
Full Address	School of Electronics Engineering and Computer Science, Peking University, No.5 Yiheyuan Road Haidian District, Beijing, P.R. China 100871	
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VICE-CHAIR

Title	Given Name	Last Name
Prof.	Zhengyu	Zhang
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website	Phone	Fax
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Main Activities

1. A high speed quantum true random number generation (TRNG) method using SLED (Super-luminescent Light-Emitting Diode) and oversampling detection is proposed. Using complex post-processing method to deal with the oversampling data, an ultra-high random bit generation rate of 1.6Tbps is achieved experimentally.
2. Novel technologies for fiber based optical frequency combs and frequency transfer are developed. One main target is trying to increase the fundamental repetition rate to GHz level. At present, the fundamental repetition rate of our Yb fiber laser oscillator has reached 750MHz, and the filtered repetition rate can be multiplied up to 35GHz.
3. Atomic optical filters with several wavelengths are developed, including 455nm, 776nm and 1529nm, with bandwidth below 1GHz. Besides expanding the working wavelengths of atomic filters, we also proposed some new methods to optimize the performance of atomic filters, especially the laser pumping efficiency for excited state atomic filters.
4. A novel back-illuminated mesa-structure back-to-back uni-traveling-carrier photodiode (UTC-PD) is realized. By stacking two UTC-PDs to form a PINIP structure without increasing single absorption layer thickness, high responsivity, high output saturation power and wide bandwidth are achieved simultaneously.

5 Major Publications

1. Yu Liu, Mingyi Zhu, Bin Luo, Jianwei Zhang, and Hong Guo, "Implementation of 1.6 Tb/s truly random number generation based on a super-luminescent emitting diode," Laser Phys. Lett. 10, 045001 (2013).
2. Chen Li, Guizhong Wang, Tongxiao Jiang, Aimin Wang, and Zhigang Zhang, "750 MHz fundamental repetition rate femtosecond Yb: fiber ring laser," Opt. Lett. 38, 314-316 (2013).
3. Longfei Yin, Bin Luo, Zhongjie Chen, Lei Zhong, and Hong Guo, "Excited state Faraday anomalous dispersion optical filters based on indirect laser pumping," Opt. Lett. 39, 842-844 (2014).
4. Tuo Shi, Bing Xiong, Changzheng Sun, and Yi Luo, "Back-to-Back UTC-PDs with High Responsivity, High Saturation Current and Wide Bandwidth," IEEE Photon. Technol. Lett. 25, 136-139 (2013).



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COMMISSION D Electronics & Photonics	Country Czech Republic	Estimated Number of members: 12
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CHAIR

Title	Given Name	Last Name
Prof.	Otakar	Wilfert
Email	wilfert@feec.vutbr.cz	
Institution name	Brno University of Technology	
Full Address	Technicka 3082/12, 616 00 Brno, Czech Republic	
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VICE-CHAIR

Title	Given Name	Last Name
Title	Given Name	Last Name
Email	Email	
website	Phone	Fax
website	Phone	Fax

Main Activities

2011: The EU project WOC COST http://www.cost.eu/domains_actions/ict/Actions/IC1101 was accepted allowing development of international cooperation in the field of optical communications.

2012: The session on Free-Space Optical Propagation was included in the in the conference EuCAP 2012 program.

URSI support when Siemens awarded prizes to young scientists from Institute of Scientific Instruments of the ASCR, v.v.i. in Brno, Czech Republic.

2013: Letter of support to the URSI Secretariat for the nomination of Dr. Martin Stumpf for the 2014 URSI Issac Koga Gold Medal.

Preparation of "Metrology of optical frequencies and optical dimensional measuring techniques" session at GASS 2014 (Convener: Prof. Josef Lazar; joe@isibrno.cz).

2014: The session chairman at GASS 2014

5 Major Publications

[1] LAZAR, J. et al. Interferometric system with tracking refractometry capability in the measuring axis. Measurement Science and Technology. Roč. 24, č. 6 (2013), 067001:1-6. ISSN 0957-0233

[2] LAZAR, J. et al. Displacement interferometry with stabilization of wavelength in air. Optics Express. Roč. 20, č. 25 (2012), s. 27830-27837.

[3] LAZAR, J. et al. Refractive Index Compensation in Over-Determined Interferometric Systems. Sensors. Roč. 12, č. 10 (2012), s. 14084-14094

[4] WILFERT, O. et al. Detection of non-standard atmospheric effects in FSO systems. In SPIE Optics & Photonics 2013 Conference on Laser Communication and Propagation through the Atmosphere and Oceans II. San Diego: SPIE Press, 2013. s. 1-8. ISBN: 9780819497246.

[5] POLIAK, J.; KOMRSKA, J.; WILFERT, O. Restricted Beam Analysis for FSO Links. In Proceedings of the 6th European Conference on Antennas and Propagation (EUCAP). Praha: Guarant s.r.o., 2012. s. 1-5. ISBN: 978-1-4577-0919-7.

<http://www.ufa.cas.cz/html/ursi/>



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COMMISSION D Electronics & Photonics	FRANCE	Estimated Number of members
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CHAIR

Title	Given Name	Last Name
Professor	Cristell	MANEUX
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VICE-CHAIR

Title	Given Name	Last Name
Title Dr	Claude	TETELIN
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website	Phone	Fax
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Main Activities

During last period, the French commission D has contributes to :

-the national congress of the URSI FRANCE untitled :

- Human connected in 2014
- ELECTROMAGNETISM, 150-1: a science at the heart of the action! in 2013

- the French national URSI price in 2013 and in 2014

- the organisation of the URSI GASS 2014.

5 Major Publications

- Mario Weiß, Cedric Majek, Amit Kumar Sahoo, Cristell Maneux, Olivier Mazouffre, Pascal Chevalier, Alain Chantre, Thomas Zimmer, "SiGe:C HBT Technology with 1.65 ps gate delay", IEEE Electron Device Letters, Volume 34, Number 10, pp 1214 - 1216, 2013

- M. Weiß, S. Fregonese, M. Santorelli, A. Kumar Sahoo, C. Maneux, T. Zimmer, 80ns/45GHz Pulsed Measurement System for DC and RF Characterisation of High Speed Microwave Devices, Solid-State Electronics, Volume 84, pp 74-82, 2013

- A. Danescu, C. Chevalier, G. Grenet, P. Regreny, X. Letartre, J.L. Leclercq, Spherical curves design for micro-origami using intrinsic stress relaxation, Applied Physics Letters 102 (12) 123111 2013

- C. Sciancalepore, B. Ben Bakir, X. Letartre, P. Viktorovitch, Bridging laser technology to silicon maturity, Recent Research Developments in Applied Physics 2013

- A. Pavlova, C. Monat, P. Rojo Romeo, C. Seassal, P. Regreny, E. Obratsova, P. Viktorovitch, X. Letartre, Towards an Integrated Mode-Locked Microlaser Based on Two-Dimensional Photonic Crystals and Graphene, J. Nanoelectron. Optoelectron. 8, 1 42-45 Special Issue: SI 2013

<http://ursi-france.mines-telecom.fr/index.php?id=23&L=-1%27>



COMMISSION D Electronics & Photonics	Country ITALY	Estimated Number of members
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CHAIR

Title	Given Name	Last Name
Title Prof.	Given Name Stefano	Last Name Selleri
Email	Email stefano.selleri@unipr.it	
Institution name	Institution name University of Parma	
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VICE-CHAIR

Title	Given Name	Last Name
Title Prof.	Gaetano	Marrocco
Email	marrocco@disp.uniroma2.it	
website	Phone	Fax
http://dl.dropbox.com/u/4358070/alab_web/Alab_people_marrocco.htm	+39 06 672597418	+39 06 72597460

Main Activities

Organization of seminars and research activity in electronics and photonics.

In photonics the main topics regard the analysis and design of optical components used in optical fiber based communication systems, optical sensing and industrial applications of optical devices.

In Electronics the main topics concern the Radiofrequency Identification technology enabling the emerging Internet of Things.

5 Major Publications

- 1) A. Candiani, M. Sozzi, A. Cucinotta, S. Selleri, R. Veneziano, R. Corradini, R. Marchelli, P. Childs, S. Pissadakis, "Optical fiber ring cavity sensor for label-free DNA detection", *IEEE Journal of Selected Topics in Quantum Electronics*, *IEEE Journal of Selected Topics in Quantum Electronics*, vol. 18, no. 3, pp. 1176-1183, 2012.
- 2) F. Poli, E. Coscelli, T. T. Alkeskjold, D. Passaro, A. Cucinotta, L. Leick, J. Broeng, S. Selleri, "Cut-off analysis of 19-cell Yb-doped double-cladding rod-type photonic crystal fibers," *Opt. Express* 19, pp. 9896-9907, 2011.
- 3) E. Coscelli, F. Poli, T. T. Alkeskjold, D. Passaro, A. Cucinotta, L. Leick, J. Broeng, S. Selleri, "Single-mode analysis of Yb-doped double-cladding distributed spectral filtering photonic crystal fibers," *Opt. Express* vol. 18 n. 26, pp. 27197-27204, 2010.
- 4) G. Marrocco, "The Art of UHF RFID Antenna Design: Impedance Matching and Size-reduction Techniques", *IEEE Antennas and Propagation Magazine*, Vol.50, N.1, pp.66-79, Feb. 2008
- 5) C. Occhiuzzi, G. Contri, G. Marrocco, "Design of Implanted RFID Tags for Passive Sensing of Human Body: the STENTag", *IEEE Trans. Antennas and Propagat.* Vol.60, N.7, pp.3146-3154, 2012



COMMISSION D Electronics & Photonics	Country: POLAND	Estimated Number of members: 40
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CHAIR

Title	Given Name	Last Name
Title	Given Name Andrzej	Last Name NAPIERALSKI
Email	Email: napier@dmcs.pl	
Institution name	Institution name: Technical University of Lodz, Poland	
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City, Region and Zip Code	LODZ, 90-924	City, Region and Zip Code
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VICE-CHAIR

Title	Given Name	Last Name
Title Prof.	Given Name: Witold	Last Name: PLESKACZ
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Main Activities

Reduced thermal models and electro-thermal simulation of semiconductor devices and electronic syst.
Design and simulation of Micro-Electro-Mechanical Systems (MEMS) and ASICs.
Biomedical engineering, image processing, neural networks.
Application of piezoresistive sensors in cryogenic temperatures (under 2K).
High level hardware description languages (VHDL-AMS, Verilog).
Vibration analysis and fault detection in large rotating electrical machines.
Design of reconfigurable systems and their hardware realization in FPGA and VLSI circuits.
Design and construction of the LLRF system for the control of the FLASH and XFEL accelerators.
Design of modules for the measurement of the gamma radiation and the neutron fluence (comp. AMC).
Design of systems for automatic fine-tuning of superconducting resonant cavities in linear accelerators.
Applications of infrared thermography in medical diagnostics.
Development of multichannel readout ASICs for X-ray imaging and neurobiology experiments.
Low power RF module for wireless communication, which can be used for neurobiology data transm.
Dual-mode blocks of the integrated circuit GALILEO and GPS signal receiver in nanometer CMOS technology for precise positioning of mobile objects

5 Major Publications

- 1) SZCZYGIEŁ R., GRYBOŚ P., MAJ P.: "High frame rate measurements of semiconductor pixel detector readout IC", Nuclear Instruments & Methods in Physics Research. Section A, Accelerators, spectrometers, detectors and associated equipment ; ISSN 0168-9002, 2012 vol. 680 s. 56-60
- 2) MARCINEK K., PLESKACZ W., A.: "ELEON3LP - Superscalar and Low-power Enhancements of Single Issue General Purpose Processor Model", Microprocessors and Microsystems, July 2012.
- 3) GRABOWSKI K., NAPIERALSKI A.: Hardware Architecture Optimized for Iris Recognition. IEEE Trans. on Circuits and Systems for Video Technology, vol 21, No 9, September 2011, ISSN1051-8215, s.1293-1303.
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Main Activities

5 Major Publications

1. A. Gorbunova, A. Baev, and Y. Kuznetsov, Network Methods Applied to Electromagnetic Field Computation, International Conference on Electromagnetics in Advanced Applications (ICEAA), Cape Town, September 2-7, 2012.
2. F. Mukhtar, J.A. Russer, Y. Kuznetsov, P. Russer, Methodology for Generation of Brune's Equivalent Circuit Models for Linear Passive Reciprocal Multi-ports, International Conference on Electromagnetics in Advanced Applications (ICEAA), Cape Town, September 2-7, 2012.
3. J. A. Russer, F. Mukhtar, A. Baev, Y. Kuznetsov, and P. Russer, Combined lumped element network and transmission line synthesis for passive microwave structures, *Advances in Radio Science*, vol. 9, pp. 95-98, 2011.



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Main Activities

URSI National Conference, University of Birmingham, September 2013

5 Major Publications

Commission D won Best Paper award at URSI National Conference for :

N.Dorh, J.L.Stokes and M.J. Cryan, "Nanoantenna Design for the Blue and UV Spectral Range"

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