

FINAL PROGRAMME

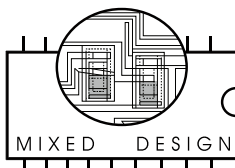
31st International Conference



MIXDES 2024

MIXED DESIGN OF INTEGRATED
CIRCUITS AND SYSTEMS

Gdansk, Poland
27 - 28 June, 2024



31st International Conference MIXED DESIGN OF INTEGRATED CIRCUITS AND SYSTEMS Gdańsk, Poland, 27-28 June 2024

MIXDES 2024 Timetable

Day 1	Thursday, June 27 th , 2024			
	Room A	Room B	Room C	Room D
8:15	Conference Opening			
8:30	Plenary Session I			
10:10	Session 1 (Part 1)	Session 2 (Part 1)	Tutorial	
11:10	Coffee Break			
11:30	Session 1 (Part 2)	Session 2 (Part 2)	Session 4	
13:00	Lunch			
14:00	Session 1 (Part 3)	Session 5 (Part 1)	Special Session II (Part 1)	Special Session I
15:20	Coffee Break			
15:40	Session 1 (Part 4)	Session 6 (Part 1)	Special Session II (Part 2)	IEEE EDS Workshop
19:00	Welcome Party			

Day 2	Friday, June 28 th , 2024		
	Room A	Room B	Room C
8:30	Plenary Session II		
10:10	Session 1 (Part 5)	Session 3	Special Session II (Part 3)
11:10	Coffee Break		
11:30	Session 1 (Part 6)	Session 5 & 6 (Part 2)	Special Session II (Part 4)
13:00	Lunch		
14:00	Tourist Activities		
19:00	Closing Ceremony		

WELCOME TO MIXDES 2024

This year the International Conference "Mixed Design of Integrated Circuits and Systems" celebrates its 31st edition. For the past thirty years the conference has been a unique forum for promoting different approaches to mixed VLSI design and an esteemed venue for presenting multidisciplinary research. This year we meet together in Gdańsk, the beautiful port city in Poland.

MIXDES 2024 consists of plenary lectures, regular and special sessions focusing on recent trends and advances on all aspects of main conference topics, reviewed and selected from all submissions from 25 countries. During the plenary lectures, the following 5 invited papers will be presented:

- *Advanced Silicon Technologies - Design Consequences of Scaling Solutions for Devices* - Dr. Tomasz Brozek (PDF SOLUTIONS, Inc., USA)
- *Energy-Efficient and High-Performance Data-Converters* - Prof. João Goes (Universidade NOVA de Lisboa, Portugal)
- *Exploring Photonic Integrated Circuits - Technologies, Applications and Challenges* - Prof. Ryszard Piramidowicz (Warsaw University of Technology, Poland)
- *Reflections on the First European Open Source PDK by IHP – Experiences After One Year and Future Activities* - Dr. Krzysztof Herman (IHP, Germany)
- *Single Dopant Lithography for the Fabrication of Atomic-scale Devices and Quantum Systems* - Prof. Ivo W. Rangelow (Technische Universität Ilmenau and nano analytik GmbH, Germany)

The program includes two special sessions, aiming at complementing the regular program with emerging topics of interest to the circuit design community:

- *Simulation and Compact Modeling for Process, Device, Circuit and Microsystem Design*
- *Instrumentation and Control for Thermonuclear Fusion*

During the conference two open events will take place:

- Tutorial "*On-chip Infrastructure for Mission-mode Monitoring of Aero-space Applications: Towards Silicon Lifecycle Management*"
- Joint IEEE EDS Workshop devoted to compact/SPICE modelling and OpenPDK Initiative

The organisers would like to thank all the distinguished scientists who have supported the conference by taking part in the International Programme Committee and reviewing the contributed papers.

We hope that you will enjoy your visit to Gdańsk and for the next year we invite you to Szczecin, another port city on the western side of Poland.

Yours Sincerely,
MIXDES 2024 Organising Committee

ORGANIZED BY

Department of Microelectronics and Computer Science,
Lodz University of Technology, Poland

Faculty of Electronics, Telecommunications and Informatics,
Gdańsk University of Technology, Poland

Department of Marine Electronics,
Gdynia Maritime University, Poland

Institute of Microelectronics and Optoelectronics,
Warsaw University of Technology, Poland

IN COOPERATION WITH

Poland Section IEEE - ED & CAS Chapter

Section of Microelectronics and Electron Technology
of the Committee of Electronics and Telecommunication
of the Polish Academy of Sciences

Commission of Electronics and Photonics
of Polish National Committee of International Union of Radio Science - URSI
Electronics Journal



IEEE

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Prof. K. Detka	
Prof. K. Górecki	Department of Marine Electronics
Prof. P. Górecki	Gdynia Maritime University, Poland

MAIN TOPICS

- 1. **Design of Integrated Circuits and Microsystems**
Design methodologies. Digital and analog synthesis. Hardware-software codesign. Reconfigurable hardware. Hardware description languages. Intellectual property-based design. Design reuse.
- 2. **Analysis and Modelling of ICs and Microsystems**
Simulation methods and algorithms. Behavioural modelling with VHDL-AMS and other advanced modelling languages. Microsystems modelling. Model reduction. Parameter identification.
- 3. **Testing and Reliability**
Design for testability and manufacturability. Measurement instruments and techniques.
- 4. **Power Electronics**
Design, manufacturing, and simulation of power semiconductor devices. Hybrid and monolithic Smart Power circuits. Power integration.
- 4. **Embedded Systems**
Design, verification and applications.
- 5. **Medical Applications**
Medical and biotechnology applications. Thermography in medicine.

CONFERENCE CENTER

The conference will take place in:

Radisson Blu Hotel

ul. Długi Targ 19

80-828 Gdańsk

e-mail: Reservations.Gdansk@RadissonBLU.com



REGISTRATION

The standard conference registration fee includes the admission to the conference, a copy of the Book of Abstracts, Conference Proceedings CD-ROM and other conference materials, tourist activities, all lunches, the welcome party, the banquet, coffee and tea during the breaks. To encourage students to participate in the Conference, the student registration fee is available.

The Book of Abstract and other conference materials will be distributed to participants at the registration desk. The Conference Proceedings CD-ROM will be distributed to the participants after the conference.

The registration desk will be located in the conference center. It will be working during the following hours:

27 June (Thursday)

07:30 – 13:00 h, 14:00 – 17:00 h

28 June (Friday)

08:00 – 13:00 h

GENERAL INFORMATION AND INQUIRIES

Dr. Mariusz Orlikowski

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THE CITY OF GDAŃSK

Gdańsk is located in the north of Poland, on the coast of the Baltic Sea. It is the largest city in the country in terms of area. Gdańsk is the center of the maritime economy with the second largest commercial port in the Baltic Sea. Gdańsk currently has approximately 500,000 inhabitants and is the center of the Tricity agglomeration, together with Gdynia and Sopot.

The history of this city dates back a thousand years. Its identity has been shaped over the centuries under the influence of many cultures. Gdańsk was the largest city of the Polish-Lithuanian Commonwealth, a royal and Hanseatic city, it had the right to actively participate in the act of electing the king, and in the 16th century it was the richest city in the Polish-Lithuanian Commonwealth. In the interwar period, i.e. in the years 1920–1939, there was an autonomous city-state, the Free City of Gdańsk, under the protection of the League of Nations. This city is considered the site of the outbreak of World War II and the birthplace of Solidarity, which overthrew communism in Poland.

The location of the conference allows you to get in a few minutes to the Old Town, to the Gothic churches, museums, and a multitude of cafes, pubs, clubs, restaurants and stores.

For more information see: <https://visitgdansk.com/>

TOURIST ACTIVITIES

For over a thousand years, Gdansk has been the centre of science, culture and art in Poland and our city sightseeing tour is a fine introduction to this historical city.

The city is renowned for its numerous old churches, including the Gothic St. Mary's Church, which is a Brick Gothic Catholic church located in central Gdańsk. With its volume between 185,000 m³ and 190,000 m³, it is currently one of the two or three largest brick churches in the world.

Gdańsk Main Town Hall is a historic place located in the Old Town. It is one of the finest examples of the Gothic-Renaissance historic buildings in the city, built

at the intersection of Long-Lane Street and Long Market, in the most popular part of Gdańsk. The History Museum of the City of Gdańsk is located in his Town Hall.

Our tour will begin with a walk along the Long-Lane Street, which is one of the most notable tourist attractions of the city. There we will see the Golden Gate to the Long Market, and the Green Gate, which forms part of the Royal Route. Furthermore, we will see Neptune's Fountain there, which is a historic fountain in Gdańsk, a mannerist-rococo masterpiece, and one of the most distinctive landmarks of the city. Afterwards, we are going to visit Gdańsk Main Town Hall there. Then, we will walk along waterside promenade, stretching along the western bank of the Motława River, and St. Mary's Street. Finally, we will visit the Gothic St. Mary's Church. As a part of the tour, we will take part in amber processing demonstration combined with Goldwasser Tasting.

TRANSPORT

Gdańsk can be reached by train or road, you can also use Gdańsk Airport connecting the city with many of European destinations (see <https://www.airport.gdansk.pl/>). It is served by three public-transport bus lines: 110 and 210 and one night line: N3. The public transport bus stations are located opposite the Passenger Terminal, next to P1 car park. Tickets for the buses can be purchased at the ticket machine placed at the bus stops, payment is possible in cash or with payment cards. Tickets can also be purchased via mobile applications (GoPay, jakdojade.pl, moBiLET, mPay, SkyCash, zbiletem.pl). Gdańsk may also be reached by taxi which may be ordered online (see <https://neptuntaxi.pl>). If you plan traveling to Gdańsk by train, please go to <https://rozkład-pkp.pl/en> for up-to-date train availability and purchasing the tickets.

To move around Gdańsk you can use the city public transport. Tickets are valid for the specific period of time - in case of change one does not have to use second ticket, except for the single fare tickets (for additional information about public transport see <https://ztm.gda.pl/>). The trip may be planned using Google Maps.

Ticket type - for all lines	fully paid	discounted
for one trip	4.80 PLN	2.40 PLN
75-minute	6.00 PLN	3.00 PLN
24-hour	22.00 PLN	11.00 PLN

If you plan using taxi to travel in Gdańsk, we recommend using corporate taxis, which may be requested by a phone call:

- Neptun Taxi, <https://neptuntaxi.pl/>, phones: +48 585 111 555, +48 800 170 700
- Halo Taxi: <https://hallotaxi.gda.pl/>, phones: +48 58 19 666, +48 781 819 666

UBER and BOLT also operates in Gdańsk, which can be ordered via dedicated applications.

PROGRAMME OF THE CONFERENCE

The programme of the MIXDES 2024 Conference will include oral presentations of contributed and invited papers and special sessions. Except for the plenary sessions, the programme of the conference will be divided into three parallel sessions, in accordance with discussed topics. The language of the Conference is English, neither translation nor interpretation will be provided.

The time of oral presentations:

- invited papers: 20-25 min. for presentation and 5-10 min. for questions,
- regular papers: 15 min. for presentation and 5 min. for questions.

Lunches:

Lunches will be served each day at the conference center at the times indicated in the programme.

Welcome Party and Conference Banquet:

The Welcome Party will be organised on Thursday (the first conference day) at 19:00. The Conference Banquet and the Closing Ceremony will take place on Friday at 19:00. Both events will take place at the conference center.

IMPORTANT PHONE NUMBERS

Ambulance	999	Fire Brigade	998
Police	997	Emergency phone	112

BANKING

Foreign exchange facilities are available at major airports and at larger hotels, as well as in many private offices, called "Kantor". Credit cards can be used in most of the places such as banks, hotels, car-rental offices, restaurants, and shops. Approximate currency exchange rate: 1 € = 4.29 PLN, 1 \$ = 3.94 PLN (for the up-to-date information refer to <http://www.nbp.pl>).

Credit cards:

Visa and MasterCard are the most common cards. However, other cards might be accepted.

Currency:

Generally, everywhere in Poland you pay in Polish zlotys. The currency units are złoty (zł, PLN) and grosz (gr), 1 zł = 100 gr. The Polish zloty is a fully convertible currency internally in Poland.

WEATHER

June in Poland is generally sunny, with some showers, the temperatures can be typically 15 to 28 °C during days. During nights, the temperature can go down to 8-10 °C. So, we can suggest you to bring summer clothes, with a quite warm jacket or pullover, and an umbrella.

Time	Room A
08:15	Conference Opening Chairmen: Prof. Wojciech Tylman and Prof. Andrzej Pfitzner
08:30	Plenary Session I Chairman: Prof. Andrzej Pfitzner <i>Advanced Silicon Technologies - Design Consequences of Scaling Solutions for Devices</i> T. Brożek (PDF SOLUTIONS, Inc., USA) <i>Reflections on the First European Open Source PDK by IHP – Experiences After One Year and Future Activities</i> K. Herman, R. Scholz, S. Andreev (IHP – Leibniz Inst. for High Performance Microelectronics, Germany) <i>On-chip Infrastructure for Mission-mode Monitoring of Aero-space Applications: Towards Silicon Lifecycle Management</i> F.L. Vargas (IHP–Leibniz Inst. for High Performance Microelectronics, Germany)
10:10	Session 1 (Part 1): Design of Integrated Circuits and Microsystems Chairman: Prof. Andrzej Pfitzner <i>10-bit ADC SAR with Passive Charge Redistribution in 40nm CMOS Technology</i> Ł. Orzeł, J. Świebicki, P. Otfinowski (AGH Univ. of Science and Techn., Poland) <i>A 0.006 mm² Low Input Capacitance Low Power Fully Differential Neural Amplifier</i> S. Sharma, Shivdeep, N. Sharma, D.M. Das (Indian Inst. of Techn. Ropar, India) <i>A Low-Power Battery Charge and Discharge Protection Circuit for Bio-Implantable Sensors in 65nm CMOS</i> S.R. Qasemi, M. Rafati, A. Alvandpour (Linköping Univ., Sweden)
11:10	Coffee Break
11:30	Session 1 (Part 2): Design of Integrated Circuits and Microsystems Chairman: Prof. Paweł Górecki <i>A 66 μW Asynchronous Time-Domain Bulk-Tuned Offset Cancellation Circuit for High-Precision Dynamic Comparator</i> N. Sharma, S. Sharma, D.M. Das (Indian Instit. of Techn. Ropar, India)

A 66 dB Ω 5 GHz and 44.88 $\sqrt{\text{Hz}/(\text{pA}\cdot\text{pW})}$ Inductorless TIA in 65 nm CMOS
A. Yaseen N J, Shivdeep, S. Sharma (Indian Inst. of Techn. Ropar, India),
H. Shrimali (Indian Inst. of Techn. Mandi, India), D.M. Das (Indian Inst. of Techn. Ropar, India)

Practical Implementation of a Trapezoidal Waveform Generator in High Voltage SOI Technology
M. Jankowski (Lodz Univ. of Techn., Poland)

Digital Fuzzy Logic Controller with Scalable Sequential Architecture
J. Waśkiewicz, A. Wielgus (Warsaw Univ. of Techn., Poland)

13:00 Lunch**14:00 Session 1 (Part 3): Design of Integrated Circuits and Microsystems**
Chairman: Prof. Wojciech Tylman

CMOS Computational Structures Using a Nonlinear Multifunctional Core
C.R. Popa (Univ. Politehnica of Bucharest, Romania)

Employing Parallelization Technique to Reduce Area and Power in a Booth Encoded Algorithm-Based Multiplier
K. Javanmardi (Roj Diyar, Iran), S. Sofimowloodi (Amirkabir Univ. of Techn., Iran), A. Attar (Roj Diyar, Iran), A. Amini (Univ. of Pavia, Italy)

FSMLock: Sequential Logic Locking through Encryption
M. Krebs, M. Łukowiak (Rochester Inst. of Techn., USA), S. Farris, M. Kurdziel (L3Harris Technologies, USA)

General-Purpose High Swing Digital-to-Analog Converter for Low Power Applications
V. Moland, C. Wulff (Norwegian Univ. of Science, Norway), D. Przyborowski (Nordic Semiconductor ASA, Norway)

15:20 Coffee Break**15:40 Session 1 (Part 4): Design of Integrated Circuits and Microsystems**
Chairman: Prof. Mariusz Zubert

Implementation of Hardware Trace Buffer Module for RISC-V Processor Core
B. Shveida (Warsaw Univ. of Techn., Poland), K. Marcinek (ChipCraft, Poland), W.A. Pleskacz (Warsaw Univ. of Techn., Poland)

Jitter Minimization of Phase-locked Loops for OFDM-Based Millimeter-Wave Communication Systems with Beam Steering

F. Herzel, C. Carta, G. Fischer (IHP – Leibniz Inst. for High Performance Microelectronics, Germany,)

Leveraging Lookup Tables for Efficient LDO Design Exploration using Open-Source CAD Tools and IHP-Open130-G2 PDK

D. Arevalos, J. Marín (Univ. Tecnica Federico Santa Maria, Chile), K. Herman (IHP – Leibniz Inst. for High Performance Microelectronics, Germany), C. Rojas (Univ. Tecnica Federico Santa Maria, Chile)

Study of Storage Capacity of Charge Trap EAROM NAND Memory Designed for Integration with VeSTIC Technology

B. Dec, A. Pfitzner (Warsaw Univ. of Techn., Poland)

19:00 Welcome Party

Time**Room B****10:10 Session 2 (Part 1): Analysis and Modelling of ICs and Microsystems**

Chairman: Prof. Tomasz Stefański

Application of Imagery Modeling and Deep Learning in Chip Thermal Analysis

Z. Shi, K. Liang, Z. Zeng, X. Shi (Shanghai Univ., China)

Limitations in the Transmission of High Power Rate Race Combiners Used in SSPA 450W CW Amplifiers in the C Band

A. Lewandowski (Zakład Doskonalenia Zawodowego, Poland)

Modeling and Comparing the Impact of Resistive and Capacitive Crossbar Associated Parasitics of Neuromorphic Circuits

S.A. Thomas, S. Kushwaha (Indian Inst. of Techn. Ropar, India), R. Sharma

(Indian Inst. of Techn. Ropar, India and The Pennsylvania State Univ., USA),

D.M. Das (Indian Inst. of Techn. Ropar, India)

11:10 Coffee Break**11:30 Session 2 (Part 2): Analysis and Modelling of ICs and Microsystems**

Chairman: Prof. Mike Schwarz

Numerical Test for Stability Evaluation of Analog Circuits

T. Stefanski, P. Kowalczyk (Gdansk Univ. of Techn., Poland), J. Gulowski (Univ. of Gdansk, Poland)

Parameter Extraction from SCLC Transport Mechanism in MIS RRAM Structures

M. Cheralathan, P. Wisniewski, R. B. Beck (CEZAMAT, Warsaw Univ. Tech., Poland)

Statistical Analysis of the Functioning of the Inertial Acceleration Sensor in a Variable Temperature Environment

J. Nazdrowicz, M. Jankowski (Lodz Univ. of Techn., Poland)

Truth Table Based Intelligent Computing

V. Hahanov, E. Litvinova (Kharkiv National Univ. of Radio Electronics, Ukraine),

Z. Davitadze (Batumi Shota Rustaveli State University, Georgia),

S. Chumachenko (Kharkiv National Univ. of Radio Electronics, Ukraine),

D. Devadze (Batumi Shota Rustaveli State University, Georgia),

V.H. Abdullayev (Azerbaijan State Oil and Industry University, Azerbaijan)

13:00 Lunch

14:00 Session 5 (Part 1): Embedded Systems

Chairman: Prof. Witold Pleskacz

Bridge Circuit Converting Atomic Transactions between AMBA AXI4 and AMBA AXI5 Standards

J. Misztal (Warsaw Univ. of Techn. and Cadence Design Sytems Inc., Poland),
M. Korona (Cadence Design Sytems Inc., Poland), W.A. Pleskacz (Warsaw Univ. of Techn., Poland)

Development of the Occupancy Detection System

M. Zbieć, D. Obrębski (Łukasiewicz - Inst. of Microelectronics and Photonics, Poland), D. Solnica (Lars Lighting Sp. z o.o., Poland)

Ethernet APL Survey and Application

A. Baratella Lugli, J.P.M. Paula Paiva, J.A. Pinto Azevedo, L. Silva Souza (Inst. Nacional de Telecomunicações - Inatel, Brazil), T. Pimenta (Univ. Federal de Itajuba, Brazil)

Hardware Acceleration Method Using RISC-V Core with No ISA Extensions

M. Wygrzywalski, P. Skrzypiec, R. Szczygiel (AGH Univ. of Science and Techn., Poland)

15:20 Coffee Break**15:40 Session 6 (Part 1): Medical Applications**

Chairman: Prof. Witold Pleskacz

Device for Simultaneous Recording of Lung Parameters and ECG as a Universal Tool for Comprehensive Physiological Monitoring - A Developmental Model

M. Czerw (Łukasiewicz – Krakow Inst. of Techn. and Silesian Univ. of Techn., Zabrze, Poland), I. Karpiel, K. Olesz, M. Mysiński (Łukasiewicz – Krakow Inst. of Techn., Poland), J. Mocha (Łukasiewicz – Krakow Inst. of Techn. and Silesian Univ. of Techn., Zabrze, Poland), A. Krawiecka, A. Sobotnicki (Łukasiewicz – Krakow Inst. of Techn., Poland)

Dry Electrodes for Capturing Brain Electrical Signals

L.G. Ferreira, T. Pimenta (Univ. Federal de Itajuba, Brazil)

Identification and Optimization of Landmarks on the Impedance Cardiography Signal ICG

I. Karpiel (Łukasiewicz – Krakow Inst. of Techn., Poland), M. Kluza (Łukasiewicz – Krakow Inst. of Techn. and Silesian Univ. of Techn., Zabrze, Poland), A. Sobotnicki (Łukasiewicz – Krakow Inst. of Techn., Poland)

Myasthenia Gravis Disease Diagnosis System

S. Baliński, P. Śniatała, J. Weissenberg, M. Fechner (Poznan Univ. of Techn., Poland), Ł. Rzepiński (Non-public Healthcare Facility "SANITAS", Poland), S. Michalak (Poznan Univ. of Medical Sciences, Poland)

Time**Room C**

10:10 **Tutorial: On-chip Infrastructure for Mission-mode Monitoring of Aero-space Applications: Towards Silicon Lifecycle Management**

11:10 **Coffee Break**

11:30 **Session 4: Power Electronics**

Chairman: Prof. Krzysztof Górecki

A Low-Power Piezoelectric Energy Harvesting Circuit for Wearable Battery-free Power Supply

I. Pandiev (Tech. Univ. Sofia, Bulgaria), H. Antchev (Univ. of Chemical Techn. and Metallurgy, Bulgaria), M. Aleksandrova (Tech. Univ. Sofia, Bulgaria)

Design of a DC Nano-Grid Based on DBS and Smart Variable Load Control Approaches

K. Javanmardi (Roj Diyar, Iran), M. Moozarmi (Hamburg Univ. of Applied Science, Germany), A. Attar (Roj Diyar, Iran), A. Amini (Univ. of Pavia, Italy), S. Sofimowloodi (Amirkabir Univ. of Techn., Iran)

Management of Renewable Generation with Storage Energy Connect to the Grid

M. Santos Moreira (Inst. Nacional de Telecomunicações – Inatel, Brazil), R. Ribeiro (Univ. Federal de Itajuba, Brazil), M.R. Cruzline (Inst. Nacional de Telecomunicações – Inatel, Brazil), T. Pimenta (Univ. Federal de Itajuba, Brazil)

Utilizing Deep Learning Techniques to Eliminate the Current Sensor in a Boost Converter Used in a DC Nano-Grid

B. Azeri (Jade Univ. of Applied Sciences, Germany), K. Javanmardi (Roj Diyar, Iran), S. Sofimowloodi (Amirkabir Univ. of Techn., Iran), A. Attar (Roj Diyar, Iran), A. Amini (Univ. of Pavia, Italy)

13:00 **Lunch**

14:00 **Special Session II (Part 1): Instrumentation and Control for Thermonuclear Fusion**

Chairman: Dr. Axel Winter

Opening

D. Makowski (Lodz Univ. of Techn., Poland)

Challenges for Diagnostics I&C at ITER

S. Simrock (ITER Organization, France)

Status and Outlook for ITER I&C Diagnostic Systems

A. Leveque (ITER Organization, France)

Image Acquisition and Processing for Plasma Diagnostics, Machine Protection and Control

D. Makowski (Lodz Univ. of Techn., Poland)

15:20 Coffee Break

15:40 Special Session II (Part 2): Instrumentation and Control for Thermonuclear Fusion

Chairman: Dr. Stefan Simrock

Imaging Diagnostics and Control for W7-X

A. Winter (Max Planck Inst. für Plasmaphysik, Germany)

Update on the ITER Visible and IR Viewing Systems

V. Martin (ITER Organization, France)

Application of Artificial Intelligence Methods for Nuclear Fusion Machine Protection

B. Jabłoński, D. Makowski (Lodz Univ. of Techn., Poland), A.P. Sitjes, M. Jakubowski (Max Planck Inst. for Plasma Physics, Germany)

100 Gbps Network Connection Performance Evaluation for Data Archiving Purposes

M. Orlikowski (Lodz Univ. of Techn., Poland)

Digital Fast X-ray Detection Systems for Industry and Scientific Experiments

P. Gryboś (AGH Univ. of Science and Techn., Poland)

19:00 Welcome Party

Room D

13:00 Lunch

14:00 Special Session I: Simulation and Compact Modeling for Process, Device, Circuit, and Microsystem Design

Chairman: Dr. Daniel Tomaszewski

Influence of Parasitic Capacitances and Inductances in a Power Electronic Converter on Junction Temperature of Power GaN HEMTs

P. Górecki, D. Ahmed (Gdynia Maritime Univ., Poland)

SPICE-Characterisable Stochastic Model of SRAM Bitcells in Retention Mode

L. Van Brand, J.-C. Delvenne, D. Flandre (Univ. Catholique de Louvain, Belgium)

FOSS EKV3 Charge-based MOS Transistor Model: An Engineering and Educational Tool

M. Bucher, N. Makris, L. Chevas (Tech. Univ. of Crete, Greece), W. Grabinski (MOS-AK, EU)

A New Approach to Modeling Charge Transport in the MOSFET "Pinch-off" Region - Preliminary Results

D. Tomaszewski (Łukasiewicz - IMiF, Poland)

AI Algorithms for Plasma Particle Tracking

M. Schwarz (TH Mittelhessen Univ. of Applied Sciences, Germany), N. Dormagen, M. Klein, S. Pappert (TH Mittelhessen Univ. of Applied Sciences and Justus Liebig Univ. Giessen, Germany), A.S. Schmitz, M.H. Thoma (Justus Liebig Univ. Giessen, Germany)

15:20 Coffee Break

15:40 Joint IEEE EDS Workshop

19:00 Welcome Party

Time**Room A****08:30 Plenary Session II**

Chairman: Prof. Wojciech Tylman

Single Dopant Lithography for the Fabrication of Atomic-scale Devices and Quantum Systems

I.W. Rangelow (Tech. Univ. Ilmenau and nano analytik GmbH, Germany),
T. Schenkel, A. Persaud (Lawrence Berkeley National Laboratory, USA),
Z. Durrani, M. Jones (Imperial College London, UK), E. Manske, T. Froehlich,
T. Sattel (Tech. Univ. Ilmenau, Germany), H.-G. Pietscher, F. Dietrich,
M. Einax (nano analytik GmbH, Germany), D. Karpuzov (Univ. of Alberta,
Canada)

Exploring Photonic Integrated Circuits - Technologies, Applications and Challenges

R. Piramidowicz, S. Stopiński (Warsaw Univ. of Techn., VIGO Photonics S.A.
and LightHouse Sp. z o.o., Poland)

Energy-Efficient and High-Performance Data-Converters

J. Goes (Univ. NOVA de Lisboa, Portugal)

10:10 Session 1 (Part 5): Design of Integrated Circuits and Microsystems

Chairman: Prof. Wojciech Tylman

Multifunctional Circuit with Applications in Analog Signal Processing

C.R. Popa (Univ. Politehnica of Bucharest, Romania)

Improving Accuracy of Current Mirrors for High Resolution Applications

E. Zehtabchi (Univ. of Pavia, Italy), H. Norouzi Kalehsar (Urmia Graduate
Inst., Iran), A. Amini (Univ. of Pavia, Italy)

*A Method Supporting Hardware Implementation of Vector Quantization
Module in HoG Algorithm*

Z. Długosz, T. Talaśka (Bydgoszcz Univ. of Science and Techn., Poland),
R. Długosz (Bydgoszcz Univ. of Science and Techn. and Aptiv Services,
Poland)

11:10 Coffee Break (sponsored by Electronics Journal)**11:30 Session 1 (Part 6): Design of Integrated Circuits and Microsystems**

Chairman: Prof. Marcin Janicki

Simulation, Measurements and Analysis of the CMOS Temperature Sensor

M. Jankowski, M. Szermer (Lodz Univ. of Techn., Poland)

Sub-terahertz Near-field Dielectric Sensor in CMOS Technology

A. Chernyadiev, D. But, Y. Ivonyak, C. Kołaciński (CENTERA Labs, IHPP PAS, Poland), K. Ikamas, A. Lisauskas (Vilnius Univ., Lithuania)

Sub-terahertz Si CMOS Based Emitters and Detectors

D. But, C. Kołaciński, A. Chernyadiev (CENTERA Labs, IHPP PAS, Poland), K. Ikamas (Vilnius Univ., Lithuania), W. Knap (CENTERA Labs, IHPP PAS, Poland), A. Lisauskas (Vilnius Univ., Lithuania)

Using Cocotb Framework during Different Stages of IC Design

M. Ludwiniak, A. Łuczyk (Warsaw Univ. of Techn., Poland)

13:00 Lunch

14:00 Tourist Activities

19:00 Closing Ceremony

Time**Room B****10:10 Session 3: Testing and Reliability**

Chairman: Prof. Andrzej Pfitzner

Analysis of an Influence of the Colour of the Emitted Light on Dynamic Properties of Power LEDs

K. Górecki, P. Ptak (Gdynia Maritime Univ., Poland)

Predicting the Workload of the Repair Department in a Company Producing Electronic Modules

W. Kowalke, P. Krawczyk (Flex, Poland), K. Górecki (Gdynia Maritime Univ., Poland)

Utilizing a Variable Activation Threshold Approach to Calculate and Increase Probabilities of Anomaly Detection

K. Wawryn, P. Widulinski (Koszalin Univ. of Techn., Poland)

11:10 Coffee Break (sponsored by Electronics Journal)**11:30 Sessions 5 & 6 (Part 2): Embedded Systems & Medical Applications**

Chairman: Prof. Witold Pleskacz

LLVM Library for a Dedicated Processor Instruction Set - A Case Study

M. Zubert (Lodz Univ. of Techn., Poland), A. Łuczyk (Warsaw Univ. of Techn., Poland)

Memory Protection with Cached Authentication Trees

M. Łukowiak, A. Belle-Isle (Rochester Inst. of Techn., USA)

Real-time Detection of Pathogens in Hydroalcoholic Solutions during Hand Disinfection Process

P. Perronno (ICube Laboratory, France and Univ. of Freiburg, Germany), J. Claudinon (OPHARDT Hygiene AG, Switzerland), J. Perronno (Univ. of Freiburg, Germany), S. Disegna (ICube Laboratory, France and OPHARDT Hygiene AG, Switzerland), S. Disegna, C. Senin (Univ. of Freiburg, Germany), N. Dumas (ICube Laboratory, France), M. Bulst (Sciospec Scientific Instruments, Germany), S. Steltenkamp (OPHARDT Hygiene AG, Switzerland), W. Römer (Univ. of Freiburg, Germany), M. Madec (ICube Laboratory, France and Univ. of Freiburg, Germany)

A System for Measuring Physiological Parameters during Extreme Activities

E. Sobotnicka (Łukasiewicz – Krakow Inst. of Techn., Poland), J. Mocha (Łukasiewicz – Krakow Inst. of Techn. and Silesian Univ. of Techn., Gliwice, Poland), A. Sobotnicki (Łukasiewicz – Krakow Inst. of Techn., Poland), Ł. Dziuda (Military Inst. of Aviation Medicine, Poland)

13:00 Lunch

Time**Room C****10:10 Special Session II (Part 3): Instrumentation and Control for Thermonuclear Fusion**

Chairman: Prof. Paweł Gryboś

ITER PCS Recent Developments and Its Integration in the ITER Environment
L. Zabeo (ITER Organization, France)

Case Studies for ITER Real-Time Framework Applications in Diagnostic I&C Systems

P. Perek, M. Basiuras, D. Makowski (Lodz Univ. of Techn., Poland)

Post Processing of Real Time Function in ITER D1 Diagnostic Measurement Systems

M. Riva, L. Penescu (ITER Organization, France)

11:10 Coffee Break (sponsored by Electronics Journal)**11:30 Special Session II (Part 3): Instrumentation and Control for Thermonuclear Fusion**

Chairman: Prof. Dariusz Makowski

Simulation of PMT Signal for ITER Hard X-ray Diagnostics

P. Nowak vel Nowakowski, D. Makowski (Lodz Univ. of Techn., Poland)

Evaluation of Image Acquisition Latency for Selected Camera Interfaces

P. Pietrzak, P. Perek, D. Makowski (Lodz Univ. of Techn., Poland)

Evaluation of Data Compression Algorithms for Firmware Upgrade in MTCA.4 Systems

M. Poczta, P. Nowak vel Nowakowski, A. Mielczarek, D. Makowski (Lodz Univ. of Techn., Poland)

Evaluation of IEEE1588 Timing Synchronisation for MTCA.4 Based Data Acquisition Systems

P. Plewiński, G. Jabłoński, P. Perek, D. Makowski (Lodz Univ. of Techn., Poland)

13:00 Lunch**14:00 Tourist Activities****19:00 Closing Ceremony**

Gdańsk City Center Map



Radisson Blu Hotel
The Conference Site
Długi Targ 19



Gdańsk Główny Train Station

~100m

