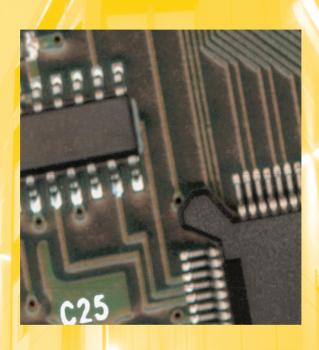
FINAL PROGRAMME

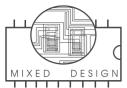
29th International Conference



MIXDES 2022

MIXED DESIGN OF INTEGRATED CIRCUITS AND SYSTEMS

Wrocław, Poland 23 - 24 June, 2022



29th International Conference MIXED DESIGN OF INTEGRATED CIRCUITS AND SYSTEMS Wrocław, Poland, 23-24 June 2022

MIXDES 2022 Timetable

Day 1	Thursday, June 23 rd , 2022					
	Room A	Room B	Room C			
8:45	Conference Opening					
9:00	Plenary Session I					
10:30	Coffee Break					
11:00	Session 1 (Part 1) Session 4 (Part 1) IEEE DL Session 4					
13:00	Lunch					
14:00	Session 1 (Part 2) Session 4 (Part 2) IEEE ED Poland Mee		IEEE ED Poland Meeting			
15:20	Coffee Break					
15:40	Session 1 (Part 3)	Session 5				
19:00		Welcome Party				

Day 2	Friday, June 24th, 2022					
	Room A	Room B	Room C			
8:30	Plenary Session II					
9:30	Session 2	SPARTAN Project (Part 1)	Special Session (Part 1)			
10:50	Coffee Break					
11:10	Session 3	SPARTAN Project (Part 2)	Special Session (Part 2)			
13:00	Lunch					
14:00	Tourist Activities					
19:00		Closing Ceremony				

WELCOME TO MIXDES 2022

This year the International Conference "Mixed Design of Integrated Circuits and Systems" celebrates its 29th edition. For the past twenty eight 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 Wrocław, the capital of Lower Silesia region.

MIXDES 2022 consists of plenary lectures, regular, special and poster sessions focusing on recent trends and advances on all aspects of main conference topics, reviewed and selected from all submissions from 19 countries. During the plenary lectures, the following 3 invited papers will be presented:

- IC Masks The Challenges of the Newest Technologies Mariusz Niewczas (Design2Silicon Inc., USA)
- Nanoelectronic Challenges and Opportunities for Cyberphysical Systems
 Maria Helena Fino (Nova School of Science & Technology, Portugal)
- Ultralow Power Stretchable TFT Electronics
 Arokia Nathan (University of Cambridge, UK)

The program includes 2 special sessions, aiming at complementing the regular program with emerging topics of interest to the circuit design community:

- Compact Modeling of Heterogeneous Devices and Systems
 organised by Dr. D. Tomaszewski (Łukasiewicz Institute of Microelectronics and
 Photonics, Poland) and Dr. W. Grabiński (GMC, Switzerland)
- Special Session in Memory of Professor Wojciech P. Maly organised by Prof. W. Kuźmicz and Prof. A. Pfitzner (Warsaw University of Technology, Poland)

In addition to the technical sessions, the conference attendees will have an opportunity to participate in an IEEE Distinguished Lecturers' session organized by Łukasiewicz - Institute of Microelectronics and Photonics, Poland in collaboration with IEEE ED Poland Chapter.

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 Wrocław and for the next year we invite you to Kraków the most beautiful city in Poland to celebrate the 30th edition of the conference.

Yours Sincerely, MIXDES 2022 Organising Committee

ORGANIZED BY

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

ORGANISING COMMITTEE

Prof. A. Napieralski (Chairman)
Dr. M. Orlikowski (Secretary)
Dr. M. Napieralska (Vice-Chairman)

Dr. G. Jabłoński Department of Microelectronics and Computer Science,

Lodz University of Technology, Poland

Prof. W. Kuźmicz Institute of Micro- and Optoelectronics,

Warsaw University of Technology, Poland





PROGRAMME COMMITTEE

Prof. M. Bucher Prof. J. Cabestany Prof. J. Collet Prof. A. Dąbrowski

Prof. G. De Mey

Prof. J. Deen Prof. M.H. Fino Dr. D. Foty Prof. L. Golonka Prof. K. Górecki Dr. W. Grabiński

Prof. P. Gryboś Prof. V. Hahanov

Prof. A. Handkiewicz Prof. A. Hatzopoulos

Dr. S. Hausman Dr. G. Jabłoński Prof. A. Kos

Prof. W. Kuźmicz

Prof. C. Lallement Prof. M. Lobur

Dr. M.M. Louerat

Prof. T. Łuba Prof. B. Macukow Prof. J. Madrenas

Dr. D. Makowski Prof. A. Martinez

Prof. A. Materka Prof. W. Mathis Prof. J.M. Moreno Dr. M. Napieralska Prof. A. Napieralski

Prof. J. Nishizawa Prof. L. Opalski Prof. A. Pfitzner Technical University of Crete, Greece Universitat Politecnica de Catalunya, Spain

LAAS - CNRS, Toulouse, France

Poznan University of Technology, Poland

University of Ghent, Belgium

(Vice-Chairman)

McMaster University, Canada

Universidade Nova de Lisboa, Portugal

Gilgamesh Associates, USA

Wrocław University of Science and Technology, Poland

Gdynia Maritime University, Poland

GMC, Switzerland

AGH University of Science and Technology, Poland Kharkiv National University of Radioelectronics, Ukraine

Poznan University of Technology, Poland Aristotle University of Thessaloniki, Greece Lodz University of Technology, Poland Lodz University of Technology, Poland

AGH University of Science and Technology, Poland

Warsaw University of Technology, Poland

Strasbourg University, France

Lviv Polytechnical National University Ukraine Université Pierre et Marie Curie, Paris, France Warsaw University of Technology, Poland Warsaw University of Technology, Poland Universitat Politecnica de Catalunya, Spain Lodz University of Technology, Poland

LAAS - CNRS, Toulouse, France

(Honorary Chairman)

Lodz University of Technology, Poland Leibniz University of Hannover, Germany Universitat Politecnica de Catalunya, Spain Lodz University of Technology, Poland Lodz University of Technology, Poland

(General Chairman)

Semiconductor Research Institute, Japan Warsaw University of Technology, Poland Warsaw University of Technology, Poland

(Programme Chairman)

MIXDES 2022

Prof. E. Piętka
Prof. W. Pleskacz
Dr. B.F. Romanowicz
Prof. J.A. Rubio
Prof. A. Rybarczyk
Prof. A. Rybarczyk
Prof. A. Rybarczyk
Silesian University of Technology, Poland
Warsaw University of Technology Institute, USA
Universitat Politecnica de Catalunya, Spain
Poznan University of Technology, Poland

Dr. J.-M. Sallese Swiss Federal Institute of Technology, Switzerland

Prof. D. Sankowski Lodz University of Technology, Poland

Dr. M. Schwarz Robert Bosch GmbH, Germany

Prof. T. Szmuc AGH University of Science and Technology, Poland

Dr. P. Śniatała Poznań University of Technology, Poland Prof. M. Tadeusiewicz Lodz University of Technology, Poland

Dr. D. Tomaszewski Institute of Electron Technology, Warsaw, Poland

Dr. P. Tounsi INSA de Toulouse, France Dr. M. Turowski Alphacore, Inc., USA

Prof. R. Ubar Tallinn Technical University, Estonia

Prof. G. Wachutka
Prof. K. Wawryn
Prof. B. Więcek
Prof. G. Wachutka
Technische University of Koszalin, Poland
Lodz University of Technology, Poland

Prof. S. Yoshitomi
Prof. J. Zarębski
Prof. M. Zubert

Eddz Offiversity of Technology, Poland
Lodz University of Technology, Poland
Lodz University of Technology, 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. Power Electronics

Design, manufacturing, and simulation of power semiconductor devices. Hybrid and monolithic Smart Power circuits. Power integration.

3. Signal Processing

Digital and analog filters, telecommunication circuits. Neural networks. Artificial intelligence. Fuzzy logic. Low voltage and low power solutions.

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:

Q Hotel Plus Wrocław

Zaolziańska 2 53-334 Wrocław Tel. +48 717491700 e-mail: wroclawplus@qhotels.pl

ACCOMMODATION

The accommodation will be offered for the Conference participants at conference site in Q Hotel Plus Wrocław located in the Wrocław city centre. Please note that the MIXDES 2022 Conference participants reserve the hotel rooms on their own.



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:

23 June (Thursday) 07:30 - 13:00 h, 14:00 - 17:00 h

24 June (Friday) 08:00 – 13:00 h

GENERAL INFORMATION AND INQUIRIES

Dr. Mariusz Orlikowski

Lodz University of Technology Department of Microelectronics and Computer Science ul. Wólczańska 221 (building B18), 93-005 Łódź, Poland

e-mail: mixdes2022@dmcs.p.lodz.pl tel.: +48 604397239 www: http://www.mixdes.org fax: +48 426360327

THE CITY OF WROCŁAW

Wrocław originates from the Xth century and was probably named after Czech Duke called Vratislav. The city was mentioned in the year 1000 in the chronicle by Merseburg Bishop Thietmar as Wrotizlawa. The shorter name Wrezlaw appeared by the end of the XIIth century. Over the centuries the city has been a part of Czech Kingdom, Poland, Austria, Prussia and Germany. The Polish Duke Bolesław the Brave seized the city in 992 and it remained, with a short break in the years 1038-1054, under the rule of Polish Piast dynasty until 1335. One of the first important events in the history of the city was the foundation of the Wrocław Diocese by Bolesław the Brave in 1000. Originally the city was located on the Cathedral Island and than it expanded to the neighbouring Sand Island. The city was devastated in 1241 during the Mongol invasion of Europe when the inhabitants burned the city to force the invaders to a withdrawal. Afterwards the town was relocated to the left bank of the river and repopulated by Germans, who became the dominant ethnic group. In 1262 Wrocław adopted Magdeburg rights and at the end of the XIIIth century joined the Hanseatic League. From that time originates also the German name of the city, Breslau. In 1335 Wrocław was incorporated into the Czech Kingdom becoming in this way a part of the Holy Roman Empire. Already in 1518 the city became protestant, however from 1526 it was ruled by the catholic Habsburgs. During the Thirty Years' War Wrocław was occupied by Saxon and Swedish troops and lost almost half of its inhabitants due to the plague. In 1702 the Austrian emperor Leopold founded the school, known as Leopoldina, which evolved later to become finally the University of Wrocław. Frederick the Great annexed Breslau during the War of the Austrian Succession in the 1740s. Finally the Austrian empress Maria Theresa ceded officially the city to Prussia in 1763. In 1813 the city became the centre of the German liberation movement against Napoleon and the centre of Prussian mobilization for the campaign which ended with the famous Battle of the Nations by Leipzig. After the unification in 1871 Breslau was the 6th largest city in Germany and its population grew rapidly to over half a million in 1910. In the same year the Technische Hochschule was founded, now known as the Wrocław University of Technology. In 1930s Breslau became one of the major support bases for the Nazis, who in the 1932 elections received 43.5% of votes, their third best result in entire Germany. During the World War II, for most of the time the city was not affected. However, in February 1945, when the Soviet Army approached Breslau, the fanatic Gauleiter Karl Hanke declared the city a Festung (fortress) to be held at all costs. This decision brought death to 18,000 civilians who froze to death during the late evacuation and further 40,000 who were killed in the fighting. By the end of the siege, which ended only on 7 May 1945, half the city was completely destroyed.

Wrocław returned to Poland in 1945 under the terms of the Potsdam Conference. Between 1945 and 1949 most remaining native German inhabitants fled or were forcibly expelled. The city was successively repopulated by the Polish citizens coming mainly from former eastern Polish territories annexed by the Soviet Union in 1939.

TOURIST ACTIVITIES

During our tourist activities you will have the possibility to visit all the most important places and monuments from the history of Wrocław, including:

- breathtakingly beautiful old Wrocław Opera house
- Wolności Square (former Zamkowy Square) situated above the moat with the oldest Baroque part which remained from a royal castle
- Four Denominations District
- Market Square, Town Hall and famous Wrocław facades of old historic buildings
- St. Elisabeth's gothic church with organs of Michael Engler
- the main baroque building of the Wrocław University
- Ostrów Tumski the oldest part of the city of Wrocław

The Ostrów Tumski will be reached by cruise with Vratislavia ship and it is the last place to visit. When the trip is finished you may return to conference site for the confeence closing ceremony and the conference banquet.

TRANSPORT

Wrocław can be reached by train or road, you can also use Copernicus Airport Wrocław. Planes from a number of European cities to Wrocław Airport (see https://airport.wroclaw.pl/en/).

There are direct trains from Warszawa Centralna Station to Wrocław Głowny Station:

Train type	IC	EIP	IC	EIP	IC	IC	IC	IC	TLK
Warszawa Centralna	05:38	05:50	07:32	09:30	10:20	12:40	14:31	19:06	21:21
Warszawa Zachodnia	05:49	05:55	07:39	09:39	10:30	12:47	14:39	19:12	21:30
Wrocław	10:38	09:55	12:11	13:34	15:11	17:20	19:25	00:30	04:11

Please note that the IC trains have seat booking (you can travel without booking only if there are free seats). For must up-to-date train availability and purchasing the tickets go to https://rozklad-pkp.pl/en

The Centre of Wrocław (Wrocław Główny Railway Station) can be reached from Wrocław Airport by MPK bus nr 106 (4.00 PLN, runs about 30 minutes) or by TAXI (~50 PLN).

MIXDES 2022

To move around Wrocław 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 http://wroclaw.jakdojade.pl/?lang=en).

Validity period	Price of ticket
Single fare	4.60 PLN
15 minutes	3.20 PLN
30 minutes	4.00 PLN
60 minutes	5.20 PLN

Validity period	Price of ticket
90 minutes	7.00 PLN
24 h	15.00 PLN
48 h	26.00 PLN
72 h	32.00 PLN

The main conference building (Q Hotel Plus Wrocław) is about 10-15 minutes on foot from the Wrocław Główny Railway Station. You can also take a tram number 70 (direction "FAT", 2 stops) TAXIs from the station are also available (~14 PLN). We recommend using corporate taxis, which may be requested by phone call:

- Domini Taxi, +48 601 999 625
- Radio Taxi Express, +48 71 373 40 30
- Radio Taxi Serc, +48 71 19 629
- Royal Taxi, +48 530 303 020

PROGRAMME OF THE CONFERENCE

The programme of the MIXDES 2022 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:

- for invited papers: 20-25 min. for presentation and 5-10 min. for questions,
- for 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: $1 \in 4.60$ PLN, 1 = 4.26 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.

First day: June 23rd 2022 (Thursday)

Time Room A

08:45 Conference Opening

Chairmen: Prof. Andrzej Pfitzner, Prof. Wiesław Kuźmicz and Prof. Gilbert De Mey

09:00 Plenary Session I

Chairman: Prof. Witold Pleskacz

IC Masks - The Challenges of the Newest Technologies M. Niewczas (D2S Inc., USA)

Estimating and Improving IC Manufacturing Yield: Past, Present and Future W. Kuźmicz (Warsaw Univ. of Techn., Poland)

VESTIC: A New IC Manufacturing Paradigm, Present Status and Future Plans A. Pfitzner (Warsaw Univ. of Techn., Poland)

10:30 Coffee Break

11:00 Session 1 (Part 1): Design of Integrated Circuits and Microsystems

Chairman: Prof. Andrzej Pritzner

8-bit Low-Power, Low-Area SAR ADC for Biomedical Multichannel Integrated Recording System in CMOS 40nm

M. Rosół, P. Kmon (AGH Univ. of Science and Techn., Poland)

A 50 MHz, 46 μW, 0.28% Accuracy, 67 ppm/°C Relaxation Oscillator in 40nm CMOS Process for Multichannel Integrated Biomedical Recording System W. Mrzygłód, P. Kmon (AGH Univ. of Science and Techn., Poland)

A Flexible CMOS Test-Pixel Readout System

D. Sami (Photolitics OOD and Univ. of Ruse, Bulgaria), D. Levski (Photolitics OOD, Bulgaria), G. Meynants (Photolitics OOD, Bulgaria and KU Leuven, Belgium), M. Waeny, N. Dimitrov, G. Bochev (Photolitics OOD, Bulgaria), R. Kandilarov (Photolitics OOD and Univ. of Ruse, Bulgaria)

A New FPGA-based Architecture of Task Scheduler with Support of Periodic Real-Time Tasks

L. Kohutka (Slovak Univ. of Techn. in Bratislava, Slovakia)

13:00 Lunch

14:00 Session 1 (Part 2): Design of Integrated Circuits and Microsystems Chairman: Prof. Wiesław Kuźmicz

Analytical Calculation of Inference in Memristor-based Stochastic Artificial Neural Networks

N. Bogun (THM Univ. of Applied Sciences and Justus-Liebig Univ., Germany), E. Perez-Bosch Quesada, E. Perez (IHP-Leibniz-Inst. für Innovative Mikroelektronik, Germany), C. Wenger (IHP-Leibniz-Inst. für Innovative Mikroelektronik and BTU Cottbus-Senftenberg, Germany), A. Kloes, M. Schwarz (THM Univ. of Applied Sciences, Germany)

Clock Signal Phase Alignment System for Daisy Chained Integrated Circuits A. Wojciechowski (Warsaw Univ. of Techn., Poland), K. Marcinek (Warsaw Univ. of Techn. and ChipCraft Sp. z o.o., Poland), W. Pleskacz (Warsaw Univ. of Techn., Poland)

Comparative Analysis of CMOS Latch-Driver Circuits for Current-Steering Digital-to-Analog Converters

O. Morales Chacon, J. Wikner, A. Alvandpour (Linkoping Univ., Sweden), L. Siek (Nanyang Technological Univ., Singapore)

Design of 1.55 NEF, $2\mu A$, Chopper Based Amplifier in 40nm CMOS for Biomedical Multichannel Integrated System

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

15:20 Coffee Break

15:40 Session 1 (Part 3): Design of Integrated Circuits and Microsystems Chairman: Prof. Krzysztof Górecki

Design Optimization of a New Nanostructured P-GaN Gate for Normally-off GaN HEMTs

D. Rouly, J. Tasselli, P. Austin, C. Haloui, K. Isoird, F. Morancho (LAAS-CNRS, Toulouse Univ., CNRS, UPS, France)

SPAD Mixed-Quenching Circuit in 0.35-µm CMOS for Achieving a PDP of 39.2% at 854 nm

A. Dervic, H. Zimmermann (TU Wien, Austria)

Ultra Low-Power, Area-Efficient Multiplier Based on Shift-and-Add Architecture K. Javanmardi (Roj Diyar Nano Electro System Technical and Engineering Company, Iran), A. Amini, A. Cabrini (Univ. of Pavia, Italy)

Observation of Readout Temperature Dependence and Its Variability for the MEMS and ASIC System Specimens and Their PCB Testbenches M. Jankowski, J. Nazdrowicz, P. Zając, P. Amrozik, M. Szermer, C. Maj, G. Jabłoński (Lodz Univ. of Techn., Poland)

19:00 Welcome Party

First day: June 23rd 2022 (Thursday)

Time Room B

11:00 Session 4 (Part 1): Embedded System

Chairman: Prof. Witold Pleskacz

Adaptive Resonance Control Based on the ANC-VSS-LMS Algorithm for Microphonics Compensation

F. Abdi, W. Cichalewski, W. Jałmużna, A. Napieralski (Lodz Univ. of Techn., Poland)

Analysis of Photovoltaics Performance Under Variable Conditions
J. Nazdrowicz, M. Jankowski, P. Błaszczyk (Lodz Univ. of Techn., Poland)

Evaluation of Embedded Devices for Real-Time Video Lane Detection K. Podbucki, J. Suder, T. Marciniak, A. Dąbrowski (Poznan Univ. of Techn., Poland)

Memory Protection with Dynamic Authentication Trees
M. Millar, M. Łukowiak, S. Radziszowski (Rochester Inst. of Techn., USA)

Software Solutions for Dynamic Configuration and Deployment of EPICS Application for MTCA.4 Chassis Management

K. Kłys, W. Cichalewski, W. Jałmużna, A. Napieralski, P. Perek (Lodz. Univ. of Techn., Poland), A. Persson, A. Lindh Olsson (ESS, Sweden)

13:00 Lunch

14:00 Session 4 (Part 2): Embedded System

Chairman: Prof. Andrzej Pfitzner

Firmware Update for Improved Reliability Embedded Systems

A. Krupiński, G. Świstak, P. Nowak vel Nowakowski, D. Makowski (Lodz Univ. of Techn., Poland)

Parameter Efficiency Testing for an Intrusion Detection System Inspired by the Human Immune System

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

Road Line Detection by Reflected Heat

P. Marzec, A. Kos (AGH Univ. of Science and Techn., Poland)

Study About Navigation Systems for Autonomous Robots

A. Baratella Lugli, E. Raimundo Neto, N. Escobar Alves, R. Paranaiba Mesquita, T. Escobar Alves, W. Eleutério Saldanha (National Inst. of Telecommunications, Brazil)

15:20 Coffee Break

15:40 Session 4 (Part 3) & Session 5: Embedded Systems & Medical Applications Chairman: Prof. Marcin Janicki

Experimental Verification of the Required Power for Electrically Heated Clothing W. Tylman, R. Kotas, M. Kamiński (Lodz Univ. of Techn., Poland), A. Dąbrowska, M. Młynarczyk (Central Inst. for Labour Protection - National Research Inst., Poland)

An Application of Dual-Q Tunable Q-factor Wavelet Transform for QRS Detection in ECG Signal

T. Pander, T. Przybyła (Silesian Univ. of Techn., Poland)

Enviropulmoguard ICT System for Interactive Health Monitoring - Preliminary Study

I. Karpiel, J. Wołoszyn, K. Olesz, M. Mysiński, M. Urzeniczok (Łukasiewicz Research Network – Institute of Medical Technology and Equipment, Poland), M. Zieliński (Medical Univ. of Silesia, Poland), S. Głowacki (Emag-Serwis Sp. z o.o., Katowice, Poland, Poland), D. Feige, A. Sobotnicki, M. Czerw (Łukasiewicz Research Network – Institute of Medical Technology and Equipment, Poland)

Fluid Therapy Completion Time Assessment
T. Przybyła, T. Pander (Silesian Univ. of Techn., Poland)

19:00 Welcome Party

First day: June 23rd 2022 (Thursday)

Time Room C

11:00 IEEE Distiguished Lecturer Session

Chairman: Dr. Daniel Tomaszewski

Ultralow Power Stretchable Devices and Circuits

A. Nathan (Univ. of Cambridge, UK)

On the Need for Non-conventional Nanoelectronics Devices Characterization in Engineering Graduate Courses: Modelling Needs and Design Challenges M.-H. Fino (Nova School of Science & Techn., Portugal)

Compact Modeling and Free Open Source PDKs in FOSS TCAD/EDA Perspectiv

W. Grabiński (GMC, Switzerland)

FETs as Detectors of THz Radiation

D. Tomaszewski (Inst. of Microelectronics and Photonics, Poland)

13:00 Lunch

14:00 IEEE ED Poland Meeting

15:20 Coffee Break

19:00 Welcome Party

Time Room A

08:30 Plenary Session II: General Invited Papers

Chairman: Dr. Daniel Tomaszewski

Nanoelectronic Challenges and Opportunities for Cyber-Physical Systems M.-H. Fino (Nova School of Science & Techn., Portugal)

Ultralow Power Stretchable TFT Electronics

A. Nathan (Univ. of Cambridge, UK), C. Jiang (Tsinghua Univ., China), J. Yu (Shandong Univ., China), H. Ma (Chinese Academy of Sciences, China)

09:30 Session 2: Power Electronics

Chairman: Prof. Marcin Janicki

Comparison of Photovoltaics System Response with Constant and Variable Step MPPT Algorithm

J. Nazdrowicz, W. Tylman, W. Marańda (Lodz Univ. of Techn., Poland)

DC/DC Buck Converter Soft-Start Methods

A. Borkowski (Warsaw Univ. of Techn., Poland), K. Siwiec (Warsaw Univ. of Techn. and ChipCraft Sp. z o.o., Poland), W. Pleskacz (Warsaw Univ. of Techn., Poland)

Influence of the IGBT Module Thermal Model Form on the Accuracy of Electrothermal Computations

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

Influence of the Measurement Method and the Cooling System on the Obtained Values of the Junction Temperature of Power MOSFETs K. Górecki, K. Posobkiewicz (Gdynia Maritime Univ., Poland)

10:50 Coffee Break

11:10 Session 3: Signal Processing

Chairman: Prof. Marcin Janicki

A Comprehensive Study of Optical Character Recognition

R. Raj, A. Kos (AGH Univ. of Science and Techn., Poland)

Analog Quadrature Modulator and Coupling Circuit for Narrowband Power Line Communication

J. Topiłko, K. Kucharski, K. Grabowski (FastLogic sp. z o.o., Poland),

Ł. Starzak, Z. Mudza (Lodz Univ. of Techn., Poland)

Data Analysis and Mining Using Logical Synthesis Methods

D. Wąsicki (Military Univ. of Techn., Poland), T. Łuba (Univ. of Social Sciences and Humanities, Poland)

Second day: June 24th 2022 (Friday)

Different Techniques for Human Activity Recognition

R. Raj, A. Kos (AGH Univ. of Science and Techn., Poland)

Model of Two Current-Source-Coupled Resonant Circuits with Chaotic Behavior

M. Rujzl, J. Petrzela (Brno Univ. of Techn., Czech Republic)

13:00 Lunch

14:00 Tourist Activities

19:00 Closing Ceremony

MIXDES 2022

Second day: June 24th 2022 (Friday)

Time	Room B
09:30	SPPARTAN Project (Part 1): SPPARTAN Project internal meeting
10:50	Coffee Break
11:10	SPPARTAN Project (Part 2): SPPARTAN Project internal meeting
13:00	Lunch
14:00	Tourist Activities
19:00	Closing Ceremony

Time Room C

09:30 Special Session (Part 1): Compact Modeling of Heterogeneous Devices and System

Chairman: Dr. Daniel Tomaszewski

Compact Modeling of Channel-Resistance Effects in Reconfigurable Field-Effect Transistors

C. Römer (TH Mittelhessen - Univ. of Applied Sciences, Germany and Universitat Rovira i Virgili, Spain), G. Darbandy, M. Schwarz (TH Mittelhessen - Univ. of Applied Sciences, Germany), J. Trommer (NaMLab gGmbH, Germany), M. Simon (NaMLab gGmbH and TU Dresden, Germany), A. Heinzig (TU Dresden, Germany), T. Mikolajick (NaMLab gGmbH and TU Dresden, Germany), W. Weber (TU Wien, Austria), B. Iñíguez (Univ. Rovira i Virgili, Spain), A. Kloes (TH Mittelhessen - Univ. of Applied Sciences, Germany)

Optimization-based Determination of TFT contact Resistances in Python M.H. Fino (Univ. Nova de Lisboa, Portugal)

Impact of Mechanical Bending on the Performance of Organic Thin-Film Transistors and the Characteristic Temperature of the Density of States

A. Nikolaou, J. Leise, J. Pruefer (THM, Germany), U. Zschieschang, H. Klauk (MPI-Stuttgart, Germany), G. Darbandy (THM, Germany), B. Iñíguez (URV, Spain), A. Kloes (THM, Germany)

10:50 Coffee Break

11:10 Special Session (Part 2): Compact Modeling of Heterogeneous Devices and System

Chairman: Prof. Maria-Helena Fino

Comprehensive Design-oriented FDSOI EKV Model H.-C. Han, A. D'Amico, C. Enz (EPFL, Switzerland)

Advances in Qucs-S Schematic Capture for SPICE and Verilog-A Device Modelling and Circuit Simulation

M. Brinson (London Metropolitan Univ., UK), D. Tomaszewski (Inst. of Microelectronics and Photonics, Poland)

Multidomain Modeling for Reliability Evaluation of Devices and Microsystems Using Verilog-A

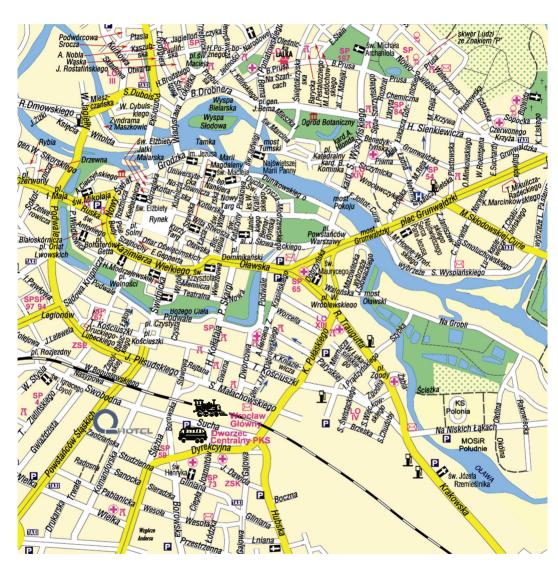
J.-B. Kammerer, M. Garci, F. Prégaldiny, L. Hébrard (ICube, France), A. Kaïd, F. Roqueta (STMicroelectronics, France)

14:00 Tourist Activities

19:00 Closing Ceremony

Notes MIXDES 2022

Wrocław City Center Map





Q Hotel Plus Wrocław - The Conference Site Zaolziańska 2



Wrocław Główny Train Station



Dworzec Centralny Coach Station

