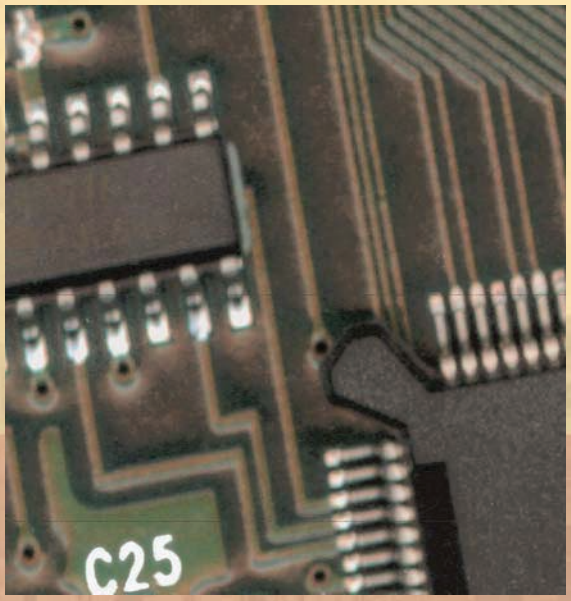
FINAL PROGRAMME

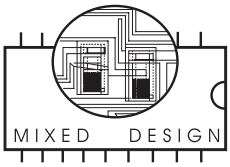
23rd International Conference



MIXDES 2016

MIXED DESIGN OF INTEGRATED CIRCUITS AND SYSTEMS

Łódź, Poland
23 - 25 June 2016



23rd International Conference MIXED DESIGN OF INTEGRATED CIRCUITS AND SYSTEMS Łódź, Poland 23 - 25 June 2016

MIXDES 2016 Timetable

Day 1	Thursday, June 23rd, 2016		
	Room A	**Room B**	**Room C**
09:30	*Welcome Coffee at DMCS (*)*		
10:00	DMCS Anniversary Celebration and Conference Opening (*)		
13:00	*Lunch (in Holiday Inn Hotel)*		
14:00	Plenary Session I		
15:00	Vendor Presentation		
15:20	Session 1 (Part 1) & Session 4	Session 3 (Part 1)	Session 9
16:40	*Coffee Break*		
16:55	Session 7	Session 3 (Part 2)	Special Session III
19:00	*Welcome Party*		

Day 2	Friday, June 24th, 2016		
	Room A	**Room B**	**Room C**
08:10	Plenary Session II		
08:40	Vendor Presentation		
09:25	Session 1 (Part 2)	Session 5 & Session 6	IEEE & PAN Meeting
10:45	*Coffee Break*		
11:00	Session 1 (Part 3)	Session 2	Special Session I
13:00	*Lunch*		
14:00	*Tourist Acivities*		

Day 3	Saturday, June 25th, 2016		
	Room A	**Room B**	**Room C**
08:15	Plenary Session III		
09:20	Session 1 (Part 4)	Session 8 (Part 1)	Special Session II
11:00	*Coffee Break*		
11:20	Session 1 (Part 5)	Session 8 (Part 2)	EduMEMS Meeting
13:00	*Lunch*		
14:00	Introduction to Poster Session		
15:30	*Coffee Break during Poster Session*		
19:00	*Closing Ceremony & Conference Banquet*		

(*) DMCS Anniversary Celebration and Conference Opening will be held in the department building at the following address (15 min distance from the conference site):

Lodz University of Technology
Department of Microelectronics and Computer Science
ul. Wólczańska 221/223, (building B18)

FROM THE ORGANISING COMMITTEE

Welcome to the MIXDES 2016 Conference.

The current edition of International Conference "Mixed Design of Integrated Circuits and Systems" is a 23rd in series of events held yearly since 1994 in the most interesting Polish cities. This year we meet together in Łódź, the former textile industry empire, today - a city of modern technologies, creative enterprises and grand events.

Very fast advances in IC technologies have brought new challenges in the physical design of integrated systems. The objective of this Conference is to provide an international forum for discussion and the exchange of information on all kind of design problems, and latest technical advancements and research in circuit design, modelling, simulation, testing and manufacturing in various areas, such as micro- and nanoelectronics, semiconductors, sensors, actuators, biomedical applications and power devices.

MIXDES 2016 offers a three-day technical program including keynote and plenary speeches, 103 oral and poster presentations reviewed and selected from all submissions from 21 countries. In addition to the regular programme, there will be five invited papers:

- *Advanced Amplification Techniques for Nanoscale CMOS Technologies*
  João P. Oliveira (Universidade Nova de Lisboa, Portugal)
- *Big Data and Electro-Thermal Design*
  Adam W. Skorek (University of Québec at Trois-Rivières, Canada)
- *CMOS FD-SOI Technology in the Eyes of a Circuit Designer*
  W. Kuźmicz (Warsaw Univ. of Techn., Poland)
- *Nanoscale MOSFET Modeling for the Design of Low-power Analog and RF Circuits*
  Christian Enz (EPFL, Switzerland)
- *Terahertz Compact SPICE*
  Michael Shur (Rensselaer Polytechnic Institute, USA)

The program of MIXDES 2016 includes also three special sessions:

- *Compact Modeling for RF Circuit Design*
  organised by Dr. Daniel Tomaszewski (Inst. of Electron Techn., Poland) and Dr. Władysław Grabiński (GMC Suisse, Switzerland)
- *Data Acquisition and Control Systems in Industry and High Energy Physics*
  organised by Dr. Stefan Simrock (ITER, France) and Dr. Dariusz Makowski (Lodz University of Technology, Poland)
- *Nanoscale Thermal Modelling and Measurement*
  organised by Dr. Marcin Janicki (Lodz University of Technology, Poland)

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 would like to welcome the new members of the Programme Committee: Prof. Ewa Piętka from Silesian University of Technology, Poland and Dr. Grzegorz Jabłoński from Lodz University of Technology, Poland.

We hope that you will enjoy your visit to Łódź and next year we will meet together in Bydgoszcz at MIXDES 2017

Yours Sincerely,
MIXDES 2016 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 Section of Signals, Electronic Circuits and Systems
of the Committee of Electronics and Telecommunication
of the Polish Academy of Sciences

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

SUPPORTED BY

Cadence Design Systems, Inc.
Comsol Multiphysics GmbH
National Instruments Corporation

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Prof.	W. Kuźmicz	Institute of Micro- and Optoelectronics, Warsaw University of Technology, Poland

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Prof. E. Piętka	Silesian University of Technology, Poland
Prof. W. Pleskacz	Warsaw University of Technology, Poland

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Prof.	J. Rutkowski	Silesian University of Technology, Poland
Prof.	A. Rybarczyk	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.	N. Stojadinović	University of Niš, Serbia
Prof.	V. Székely	Technical University of Budapest, Hungary
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Dr.	D. Tomaszewski	Institute of Electron Technology, Warsaw, Poland
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Prof.	S. Yoshitomi	Toshiba Corporation, Japan
Prof.	J. Zarębski	Gdynia Maritime Academy, Poland
Prof.	M. Zubert	Lodz University of Technology, Poland

MAIN TOPICS

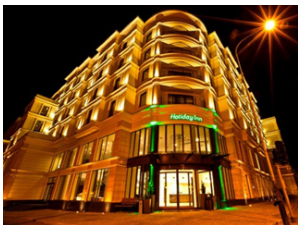
1. **Design of Integrated Circuits and Microsystems**
   Design methodologies. Digital and analog synthesis. Hardware-software codesign. Reconfigurable hardware. Hardware description languages. Intellectual property-based design. Design reuse.
2. **Thermal Issues in Microelectronics**
   Thermal and electro-thermal modelling, simulation methods and tools. Thermal mapping. Thermal protection circuits.
3. **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.
4. **Microelectronics Technology and Packaging**
   New microelectronic technologies. Packaging. Sensors and actuators.
5. **Testing and Reliability**
   Design for testability and manufacturability. Measurement instruments and techniques.
6. **Power Electronics**
   Design, manufacturing, and simulation of power semiconductor devices. Hybrid and monolithic Smart Power circuits. Power integration.
7. **Signal Processing**
   Digital and analog filters, telecommunication circuits. Neural networks. Artificial intelligence. Fuzzy logic. Low voltage and low power solutions.

8. **Embedded Systems**
   Design, verification and applications.
9. **Medical Applications**
   Medical and biotechnology applications. Thermography in medicine.

CONFERENCE CENTER

The conference will take place in:

Hotel Holiday Inn
Piotrkowska 229/231
90-456 Łódź
Tel. +48 42 208 2010
Fax. +48 42 208 2002
e-mail: reservations@hilodz.com
www: http://hilodz.com/en/



ACCOMMODATION

The accommodation will be offered for the Conference participants at conference site in Holiday Inn hotel located in the Łódź city centre. Please note that the MIXDES 2016 Conference participants reserve the hotel rooms on their own. The hotels may require prepayment or valid credit card.

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 (welcome party and banquet not included). The standard registration fee is 380 € or 1680 Złoty. However, the sponsorship allowed organisers to cover part of the fee for IEEE members. For details, please consult the price policy on the Conference web site.

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)	09:00 – 12:00 h (at DMCS)
	14:00 – 18:00 h (at the Hotel)
24 June (Friday)	08:00 – 13:00 h (at the Hotel)
25 June (Saturday)	08:00 – 13:00 h, 14:00 – 16:00 h

GENERAL INFORMATION AND INQUIRIES

Dr. Mariusz Orlikowski

Lodz University of Technology
Department of Microelectronics and Computer Science
ul. Wólczańska 221/223 (building B18), 90-924 Łódź, Poland

e-mail: mixdes2016@dmcs.p.lodz.pl tel.: +48 (0) 604397239
www: http://www.mixdes.org fax: +48 (0) 426360327

THE CITY OF ŁÓDŹ

Łódź is the third-largest city in Poland located in the central part of the country. Its roots can be traced to the 14th century, in 1423 King Władysław II Jagiełło officially granted city rights to the village. At the beginning of the 19th century Łódź becomes home for settlers from Silesia, Brandenburg, Saxony, Czech Republic and Moravia and huge factories are being built. The industrialists are making their fortunes, their houses becoming the testimony of their wealth and power. In today's Łódź there are still more than 200 manufacturers' residences to be admired. The former palaces serve as sites of major public institutions, offices and museums. Until 1990, city's economy heavily focused on the textile industry, so it has sometimes been called "the Polish Manchester".

Currently, Łódź is an important economic, commercial, cultural, scientific, educational centre. Łódź hosts six major state-owned universities operating for more than a half of the century. Recent years have seen many foreign companies opening and establishing their offices in Łódź.

Łódź is also the Hollywood equivalent in Poland. It has the famous Lodz Film School which has served as an important educational center for stalwart Polish directors and is considered a vital cultural center.

Tourists are delighted by the beautifully restored buildings and the magnificent residential structures of the industrial tycoons, edifices which combine Art Nouveau architecture with eclecticism. The largest 19th-century textile-factory complex, built by Izrael Poznanski, has been converted after revitalization project, unique at the Polish and European scale, to a center of entertainment, culture and commerce called "Manufaktura" - 20 ha of surface include, among others, a Market with colourful fountains – a place, which hosts festivals, concerts and outdoor events.

The city's pride and joy is the main promenade, Piotrkowska Street, which stretches from north to south for a little over four kilometers, making it the longest commercial street in the world. The street showcases magnificent 19th century Art Nouveau and Secession style buildings and palaces of former industry magnates. A few of the building façades, which date back to the 19th century, have been renovated. It is the site of most restaurants, bars and cafes in Łódź's city centre.

Łódź is also widely known for the word-famous events like: Ballet Meetings, Explorers Festival, International Film Festival of the Art of Cinematography, Fashion Week Poland, Łódź Design Festival, Light Move Festival … just to mention a few.

TOURIST ACTIVITIES

The guided tour will start at 14:00 in front of the conference site.

The guides will walk us first through the Piotrkowska Street. The street forms a part of the medieval route connecting the cities of Toruń and Kraków. Along with industrial development of the city, the factory buildings and wooden houses appeared, later gradually replaced by magnificent palaces and tenement houses. Piotrkowska soon became the finest street of the city and at the same time the heart of the industrial giant. Currently the northern section being a promenade, the southern part still keeps its character of a transport route. Piotrkowska is the only artery in the country to preserve original 19th century urban architecture combining examples of historism, eclectism and fantastic Art Nouveau. The unique character of the street can only be compared to the streets of Vienna.

Next, we will have a look at some palaces and villas located at the campus of Lodz University of Technology. Following the intentions of former owners the university authorities accommodated and rearranged industrial property and residential villas to make them useful for the university. One of the most beautiful buildings is Reinhold Richter's villa surrounded by a beautiful park, currently serving as the Rector's office.

Our walk will end at Manufaktura. Former Poznanski's empire has become nowadays the heart of the city. After revitalization, the red brick industrial buildings have been turned into places of culture, entertainment and leisure, so Manufaktura has become a landmark of modern Łódź.

More information about Łódź can be found on the web page http://en.cit.lodz.pl/.

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 many places such as banks, hotels, car-rental offices, restaurants, and large shops. Approximate currency exchange rate: 1 € = 4.38 złoty, 1 $ = 3.86 złoty (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.

TRANSPORT

Łódź can be reached by train or road, you can also use Lodz Władysław Reymont Airport. Various planes to Lodz airport are available from Munich, Paris, Amsterdam, London and Dublin to Lodz Airport (see http://www.airport.lodz.pl/).

There are direct trains from Warszawa Centralna Station to Lodz Kaliska Station, as shown below:

Number	**10120**	**19109**	**19151**	**19153**	**19101**	**10122**
Runs	daily	daily	Mo-Fri	Mo-Fri	daily	daily
Train type	InterRegio	TLK (fast)	TLK (fast)	TLK (fast)	TLK (fast)	InterRegio
Warszawa	5:03	6:05	7:05	9:05	10.05	10:35
Lodz	6:50	7:49	8:49	10:49	11.53	12:20

Number	19155	19157	10124	19103	19159	10126
Runs	Mo-Fri	Mo-Fri	Mo-Fri	daily	Mo-Fri	daily
Train type	TLK (fast)	TLK (fast)	InterRegio	TLK (fast)	TLK (fast)	InterRegio
Warszawa	11:05	13:05	13:15	14.05	15:05	15:15
Lodz	12:48	14:47	14:59	15.55	16:50	17:02

Number	19161	1911	19165	10128	19105	19169
Runs	Mo-Fri	Mo-Fri	Mo-Fri	daily	Mo-Fri	Mo-Fri
Train type	TLK (fast)	InterCity	TLK (fast)	InterRegio	TLK (fast)	TLK (fast)
Warszawa	15:35	16:45	17:05	17:15	18.05	19:05
Lodz	17:24	18:10	18:50	19:03	19.56	20:49

For trains from the Warsaw airport please refer to http://rozklad-pkp.pl, search for trains from “Warszawa Lot. Chopina” to “Łódź Kaliska”. You will have to change the train at the Warszawa Zachodnia station. For the trip from Chopin Airport to Warszawa Zachodnia you can buy 20 min. ticket (ticket machine available at the train station entrance) but it must be validated in the train just when it starts running.

To travel Łódź you can use the city public transport. Tickets are valid in the period of time – in case of change one does not have to use second ticket, except for the single fare tickets, that can be bought only from the driver.

Buying public transport tickets is facilitated by the ticket machines installed in all MPK-Łódź vehicles (first carriage in trams). Most of the machines allows for paying only by card. Tickets can also be purchased in 16 modern stationary ticket machines. The machines accept payment for tickets by all kinds of bank cards, bank notes as well as coins. They give the change. One of them is located at tram stop close to Lodz Kaliska train station.

Validity period	Price of ticket	
	Standard lines	Night lines
Single fare	3.80 PLN	3.80 PLN
20 minutes	2.60 PLN	2.60 PLN
40 minutes	3.40 PLN	3.40 PLN
60 minutes	4.40 PLN	4.40 PLN
24h	12.00 PLN	

The main conference building (HOLIDAY-INN HOTEL) is about 15 minutes by tram from the Lodz Kaliska train station. One should take the tram no. 10 (direction OLECHÓW) or 14 (DĄBROWA) and change it on the second stop (PIOTRKOWSKA CETRUM), taking tram no. 2 (DĄBROWA), 3 (OLECHÓW), 6 (KURCZAKI), 11 (CHOCIANOWICE-IKEA) or 16/16A (KURCZAKI) for another 2 stops (leaving at PIOTRKOWSKA-BRZEŹNA). TAXI from the station are also available.

To reach the hotel from airport, one should take the bus 55 (direction JANÓW) and leave it on the 14th stop (BRZEŹNA-PIOTRKOWSKA). The trip takes about 20 minutes. TAXI is also available (the price from Lodz Kaliska train station is about 15 PLN, from Lodz Władysław Reymont Airport is about 25 PLN). We recomend using corporate taxis, which may be requested by phone call:

- Taxi Plus +48 426500500
- Taxi Łódź +48 737737737
- Green Cab Taxi +48 664608608

PROGRAMME OF THE CONFERENCE

The programme of the MIXDES 2016 Conference will include oral presentations of contributed and invited papers, special sessions and poster session.
Except for the plenary and poster 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.

Poster presentations:

The authors presenting their papers at the poster sessions will have at their disposal an A0 panel with all the accessories necessary to attach your poster. On the third conference day after lunch, an introduction to poster session is planned, in which the authors are asked to present their work very shortly in front of the audience: 2-3 slides, within 1-2 minutes. The questions and discussions will be continued at the poster panels.

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 Awards Ceremony will take place on Saturday at 19:00, both at the conference center.

The Welcome Party and the Conference Banquet are not included in the student registration fee.

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

09:30 **Welcome Coffee at DMCS (*)**

10:00 **DMCS Anniversary Celebration and Conference Opening (*)**
Chairmen: Prof. A. Napieralski, Prof. G. De Mey and Prof. W. Kuźmicz

13:00 **Lunch** (in Holiday Inn Hotel)

14:00 **Plenary Session I**
Chairman: Prof. A. Napieralski

Terahertz Compact SPICE
M. Shur (Rensselaer Polytech. Inst., USA)

Big Data and Electro-Thermal Design
A.W. Skorek (Univ. Québec at Trois-Rivières, Canada)

15:00 **Vendor Presentation**

Software-defined Instrumentation – the New Paradigm in Measurements
M. Antonik (National Instruments, Poland)

15:20 **Session 1 (Part 1) & 4: Design of Integrated Circuits and Microsystems & Modelling of ICs and Microsystems**
Chairman: Prof. W. Kuźmicz

28 nm UTBB-FDSOI Energy Efficient and Variation Tolerant Custom Digital-Cell Library with Application to a Subthreshold MAC Block
A.A. Vatanjou, T. Ytterdal, S. Aunet (Norwegian Univ. of Science and Techn., Norway)

7.3kfps Readout Solution for 65k Pixel X-Ray Camera Working in Zero Dead-Time Mode
A. Kozioł, P. Maj (AGH Univ. of Science and Techn., Poland)

A 800MS/s, 150μV Input-referred Offset Single-stage Latched Comparator
S. Kazeminia (Urmia Univ. of Techn., Iran), S. Mahdavi (Urmia Graduate Inst., Iran)

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Lodz University of Technology
Department of Microelectronics and Computer Science
ul. Wólczańska 221/223, (building B18)

Lateral Schottky Barrier Diodes Based on GaN/AlGaN 2DEG for sub-THz Detection
G. Cywiński, I. Yahniuk, K. Szkudlarek, P. Kruszewski, S. Yatsunenko, G. Muzioł, C. Skierbiszewski (IHPP Polish Academy of Sciences, Poland), D. But (Laboratoire Charles Coulomb L2C, France), W. Knap (IHPP Polish Academy of Sciences, Poland and Laboratoire Charles Coulomb L2C, France)

16:40 Coffee Break

16:55 Session 7: Signal Processing
Chairman: Prof. A. Rybarczyk

3D Face and Hand Scans Acquisition System Dedicated for Multimodal Biometric Identification
P. Nowak, W. Sankowski, P. Krotewicz (Lodz Univ. of Techn., Poland)

Evaluation of Head Pose Estimation Methods for a Non-cooperative Biometric System
M. Włodarczyk, D. Kacperski, P. Krotewicz, K. Grabowski (Lodz Univ. of Techn., Poland)

Low-voltage Quasi-linear Current-to-Voltage Converter for Analog Signal Processing
R. Wojtyna (Univ. Techn. & Life Sciences, Poland)

Multimodal Speech Data Acquisition with the Use of EMA, Fast-speed Video Cameras and a Dedicated Microphone Array
Ł. Mik, R. Wielgat, D. Król, R. Jędryka (State Higher Vocational School in Tarnow, Poland), A. Lorenc (Maria Curie-Skłodowska Univ. in Lublin, Poland), R. Święciński (Amsterdam Univ. of Applied Sciences, The Netherlands)

Pose-Oriented Face Images Acquisition Platform
D. Kacperski, P. Krotewicz, M. Włodarczyk, K. Grabowski (Lodz Univ. of Techn., Poland)

19:00 Welcome Party

Time **Room B**

15:20 Session 3 (Part 1): Analysis and Modelling of ICs and Microsystems
Chairman: Prof. L. Opalski

Active Guard Ring Characterization for Smart Power ICs
P. Buccella, C. Stefanucci, J.-M. Sallese, M. Kayal (EPFL, Switzerland)

Analysis and 2D Analytical Modeling of III-V Schottky Barrier Double-Gate MOSFETs
M. Schwarz (Germany), A. Kloes (Tech. Hochschule Mittelhessen, Germany)

Computing the Impact of White and Flicker Noise in Continuous-time Integrator-based ADCs
P. Gosselin, A. Koukab, M. Kayal (EPFL, Switzerland)

Contribution to Scaling of the Vertical Slit Field-Effect Transistor (VeSFET)
A. Pfitzner, B. Kowalska (Warsaw Univ. of Techn., Poland)

16:40 Coffee Break

16:55 Session 3 (Part 2): Analysis and Modelling of ICs and Microsystems
Chairman: Dr. M. Schwarz

High Frequency Limitations of Active Rectifier Circuits for RFID Applications
J. Fischer, J. Borg, J. Johansson (Luleå Univ. of Techn., Sweden)

On Analysis of Harmonic Distortion in Op Amps Based Circuits via Volterra Series
A. Borys (Gdynia Maritime Univ., Poland)

Parameter Identification for Behavioral Modeling of Analog Components Including Degradation
M. Taddiken, T. Hillebrand, K. Tscherkaschin, S. Paul, D. Peters-Drolshagen (Univ. Bremen, Germany)

19:00 Welcome Party

Time	Room C

15:20 Session 9: Medical Applications
Chairman: Prof. Z. Ciota

Inkjet 3D Printed Microfluidic Devices
K. Adamski, W. Kubicki, R. Walczak (Wrocław Univ. of Science and Techn., Poland)

Macroscale Heat Transfer in Human Tissues
G. De Mey (Univ. Ghent, Belgium), M. Strakowska, B. Więcek (Lodz Univ. of Techn., Poland)

Monitoring Changes of Pulse Wave Velocity PWV in Medical Telemonitoring System Based on a Synchronized, Dispersed Sensor Network SWBAN
B. Szuster, Z. Szczurek, P. Kowalski, A. Gacek, B. Kubik, A. Michnik, R. Wiśniowski (Inst. of Medical Techn. and Equipment, Poland)

Monitoring of Dynamic Movements Using Acceleration Measurements
K. Neneman, A. Łuczyk, W. Pleskacz (Warsaw Univ. of Techn., Poland)

16:40 Coffee Break

16:55 Special Session III: Nanoscale Thermal Modelling and Measurement
Chairman: Dr. M. Janicki

Thermal Transport Phenomena Beyond the Diffusive Regime
P.-O. Chapuis, T.T. Nghiem, C. Abs Da Cruz (CNRS-INSA Lyon, France), E. Nefzaoui (ESIEE, France)

Thermal Nanometrology Using Scanning Probe Microscopy Technologies
T. Gotszalk, M. Rudek (Wrocław Univ. of Science and Techn., Poland), P. Janus, P. Grabiec (Institute of Electron Techn., Poland)

Design and Technology of Nanoprobes and Test Samples for Scanning Thermal Microscopy
P. Grabiec, P. Janus, A. Sierakowski (Institute of Electron Techn., Poland), T. Gotszalk, M. Rudek (Wrocław Univ. of Science and Techn., Poland)

Thermal Simulation of Nanoscale Platinium Heaters
T. Raszkowski, M. Zubert, A. Samson, M. Janicki, A. Napieralski (Lodz Univ. of Techn., Poland)

19:00 Welcome Party

Time **Room A**

08:10 Plenary Session II
Chairman: Prof. W. Kuźmicz

Nanoscale MOSFET Modeling for the Design of Low-power Analog and RF Circuits
C. Enz (EPFL, Switzerland)

08:40 Vendor Presentation

An Aging-Aware Transistor Sizing Tool Regarding BTI and HCD Enhancing Microelectronics Development by Multiphysics Simulations
T. Englisch, C. Gordalla (Comsol Multiphysics GmbH, Germany)

The Four Aims of EDA Software
A. Klotz (Cadence Design Systems, Germany)

09:25 Session 1 (Part 2): Design of Integrated Circuits and Microsystems
Chairman: Dr. M. Schwarz

A Flexible, Low-noise Charge-sensitive Amplifier for Particle Tracking Application
K. Kasiński, R. Kleczek (AGH Univ. of Science and Techn., Poland)

A Low Sampling Frequency Switched Capacitor Low-pass Filter for Wireless Receivers
J. Kopanski, Ł. Wiechowski, K. Siwiec, W. Pleskacz (Warsaw Univ. of Techn., Poland)

A nA Crystal-Less Oscillator for Internet of Things
M. Coustans, F. Krummenacher, M. Kayal (EPFL, Switzerland), C. Terrier (EM Microelectronic-Marin SA, Switzerland)

A New Class-AB Flipped Voltage Follower Using a Common-gate Auxiliary Amplifier
F. Centurelli, P. Monsurrò, D. Ruscio, A. Trifiletti (Univ. Rome Sapienza, Italy)

10:45 Coffee Break

11:00 Session 1 (Part 3): Design of Integrated Circuits and Microsystems
Chairman: Dr. P. Śniatała

A New Current Mode Min-Max Circuit Using CMOS Technology for Fuzzy Applications
R. Khayatzadeh (Istanbul Tech. Univ., Turkey), M. Ghasemzadeh, S. Mahdavi (Urmia Univ., Iran)

Gm-C Biquad Filter for Low-Signal Sensor Applications
R. Arya (UNINOVA, Portugal), J. Oliveira (UNINOVA and Univ. Nova Lisboa, Portugal)

About Some Peculiar Approaches to Seeking the Ashenhurst Decomposition of Logic Functions in the Reed-Muller Spectrum Domain
D. Polok, E. Hrynkiewicz (Silesian Univ. of Techn., Poland)

Bulk Controlled Offset Cancellation Mechanism for Single-stage Latched Comparator
S. Kazeminia (Urmia Univ. of Techn., Iran), S. Mahdavi, R. Gholamnejad (Urmia Graduate Inst., Iran)

Configurable FPGA Architecture for Hardware-Software Merge Sorting
P.C. Petrut, A. Amaricai, O. Boncalo (Univ. Politehnica Timisoara, Romania)

13:00 Lunch

14:00 Tourist Activities

Time **Room B**

09:25 Session 5 & 6: Testing and Reliability & Power Electronics
Chairman: Prof. G. De Mey

Degradation and Temperature Analysis of Voltage-Controlled Ring Oscillators for Robust and Reliable Oscillator Designs in a 65nm Bulk CMOS Process
K. Tscherkaschin, T. Hillebrand, M. Taddiken, S. Paul, D. Peters-Drolshagen (Univ. Bremen, Germany)

Stochastic LUT-based Reliability-aware Design Method for Operation Point Dependent CMOS Circuits
T. Hillebrand, N. Hellwege, M. Taddiken, K. Tscherkaschin, S. Paul, D. Peters-Drolshagen (Univ. Bremen, Germany)

Extraction of Temperature Dependent Parameters for an Electrothermal Model of Thermoelectric Energy Harvester
P. Dziurdzia, P. Bratek, I. Brzozowski, W. Gelmuda, J. Ostrowski, A. Kos (AGH Univ. of Science and Techn., Poland)

High-temperature Properties of Schottky Diodes Made of Silicon Carbide
K. Górecki, D. Bisewski, J. Zarębski (Gdynia Maritime Univ., Poland), R. Kisiel, M. Myśliwiec (Warsaw Univ. of Techn., Poland)

10:45 Coffee Break

11:00 Session 2: Thermal Issues in Microelectronics
Chairman: Prof. G. De Mey

Coupled Thermo-fluidic Simulation for Design Space Exploration of Microchannels in Liquid-cooled 3D ICs
P. Zając, C. Maj, M. Galicia, A. Napieralski (Lodz Univ. of Techn., Poland)

Environment Aware Temperature Control in Processors
P. Kocanda, A. Samake, A. Kos (AGH Univ. of Science and Techn., Poland)

Modelling of Average Radiation and Convection Heat Transfer Coefficient Value in Electronic Systems
A. Samson, T. Torzewicz, T. Raszkowski, M. Janicki, M. Zubert, A. Napieralski (Lodz Univ. of Techn., Poland)

Modelling Simple Photovoltaic Systems with Thermal Phenomena Taken into Account
K. Górecki, P. Górecki, E. Krac (Gdynia Maritime Univ., Poland)

Modelling the Half-bridge Dc-Dc Converter with Self-heating Taken into Account
M. Godlewska, K. Górecki (Gdynia Maritime Univ., Poland)

13:00 Lunch

Time	Room C

09:25 IEEE & PAN Meeting: Meeting of Electron Devices IEEE & Section of Microelectronics PAN

10:45 Coffee Break

11:00 Special Session I: Compact Modeling for RF Circuit Design
Chairman: Dr. D. Tomaszewski

Analog and RF Modeling of FDSOI UTBB MOSFET Using Leti-UTSOI Model
S. El Ghouli, P. Scheer, M. Minondo, A. Juge (STMicroelectronics, France), T. Poiroux (CEA, France), J.-M. Sallese (EPFL, Switzerland), C. Lallement (Univ. Strasbourg, France)

Comparative Numerical Analysis and Analytical RDF-modeling of MOSFETs and DG Tunnel-FETs
M. Gräf, F. Hain, F. Hosenfeld, F. Horst, A. Farokhnejad, A. Kloes (Tech. Hochschule Mittelhessen, Germany), B. Iniguez (Univ. Rovira i Virgili, Spain),

Modeling Approach for Rapid NEGF-Based Simulation of Ballistic Current in Ultra-Short DG MOSFETs
F. Hosenfeld, M. Gräf, F. Horst, A. Kloes (Tech. Hochschule Mittelhessen, Germany), B. Iniguez, F. Lime (Univ. Rovira i Virgili, Spain)

Verilog-A Compact Model of Integrated Tapered Spiral Inductors
M.H. Fino (Univ. Nova Lisboa, Portugal)

Current Conveyor Macromodels for Wideband RF Circuit Design
M. Brinson (London Metropolitan Univ., UK), V. Kuznetsov (Bauman Moscow Techn. Univ., Russia)

FOSS as an Efficient Tool for Extraction of MOSFET Compact Model Parameters
D. Tomaszewski, G. Głuszko (Institute of Electron Techn., Poland), V. Kuznetsov (Bauman Moscow State Tech. Univ., Russia), M. Brinson (London Metropolitan Univ., UK), W. Grabinski (GMC Research, Switzerland)

13:00 Lunch

14:00 Tourist Activities

Time **Room A**

08:15 Plenary Session III
Chairman: Prof. A. Napieralski

Advanced Amplification Techniques for Nanoscale CMOS in the Context of IoT Node Sensors
J. Oliveir, J. Goes (UNINOVA and Univ. Nova de Lisboa, Portugal)

CMOS FD-SOI Technology in the Eyes of a Circuit Designer
W. Kuźmicz (Warsaw Univ. of Techn., Poland)

09:20 Session 1 (Part 4): Design of Integrated Circuits and Microsystems
Chairman: Prof. A. Pfitzner

Design of a Circuit for a CMRR Correction of Multichannel Integrated Circuits
P. Kmon, A. Lisicka (AGH Univ. of Science and Techn., Poland)

Design of a Gain-stage for Pipelined SAR ADC Using Capacitive Charge Pump
K. Chen, A. Alvandpour (Linköping Univ., Sweden)

Development of Multi-Pixel NMOS-based THz Detectors and Readout System Targeted for Spectroscopy Applications
J. Marczewski, D. Obrębski, C. Kołaciński, M. Zbieć, K. Kucharski (Institute of Electron Techn., Poland), P. Zagrajek (Military Univ. of Techn., Poland), P. Kopyt (Warsaw Univ. of Techn., Poland)

Fast Integrated Circuit of Pixel Architecture for Digital X-ray Imaging
P. Gryboś, P. Kmon, P. Maj, R. Szczygieł (AGH Univ. of Science and Techn., Poland)

MOS Transistor as a Current-controlled Device
W. Kuźmicz (Warsaw Univ. of Techn., Poland)

11:00 Coffee Break

11:20 Session 1 (Part 5): Design of Integrated Circuits and Microsystems
Chairman: Prof. K. Wawryn

Implementation of the PRESENT-80 Block Cipher and Analysis of Its Vulnerability to Side Channel Attacks Exploiting Static Power
D. Bellizia, G. Scotti, A. Trifiletti (Univ. Rome Sapienza, Italy)

On-chip Analog Current Equalizer as a Countermeasure Against Side-channel Attacks in CMOS Nanometer Technology
D. Bellizia, G. Scotti, A. Trifiletti (Univ. Rome Sapienza, Italy)

Encryption Using Reconfigurable Reversible Logic Gate and Its Simulation in FPGAs
M. Bryk, K. Gracki (Warsaw Univ. of Techn., Poland), P. Kerntopf (Univ. Lodz, Poland), M. Pawłowski, A. Skorupski (Warsaw Univ. of Techn., Poland)

Reversible Circuit Synthesis Using Binary Decision Diagrams
K. Podlaski (Univ. Lodz, Poland)

Synthesis of Anti-aliasing Filters for F Receivers
P. Monsurrò, A. Trifiletti (Univ. Rome Sapienza, Italy)

13:00 Lunch

14:00 Introduction to Poster Session
Chairman: Prof. W. Pleskacz

A 10-phases Programmable Clock Generator for the Application in Control of SAR ADC Realized in the CMOS 130 nm Technology
R. Długosz, T. Talaśka (UTP Univ. of Science and Techn., Poland)

A New Adaptive PLL to Reduce the Lock Time in 0.18μm Technology
M. Ghasemzadeh (Urmia Univ., Iran), S. Mahdavi (Urmia Graduate Inst., Iran), A. Zokaei, K. Hadidi (Urmia Univ., Iran)

A New Ultra High Speed 5-2 Compressor with a New Structure
M. Ghasemzadeh (Urmia Univ., Iran), S. Mahdavi (Urmia Graduate Inst., Iran), A. Zokaei, K. Hadidi (Urmia Univ., Iran)

An Artificial Neural Network for Classification a Quality of a Coal Fuel in Combustion Chambers Using FPAA
R. Suszyński, J. Marciniak, K. Wawryn (Koszalin Univ. of Techn., Poland)

Architecture and Design of a Bluetooth Low Energy Controller
P. Wiecha, M. Ciepłucha, P. Kłoczko, W. Pleskacz (Warsaw Univ. of Techn., Poland)

Bandwidth Broadening of the Photodetector Signal Path
L. Opalski, K. Opalska (Warsaw Univ. of Techn., Poland)

Digitally-assisted Offset Cancellation Technique for Open Loop Residue Amplifiers in High-resolution and High-speed ADCs
S. Kazeminia (Urmia Univ. of Techn., Iran), S. Mahdavi, K. Hadidi (Urmia Graduate Inst., Iran)

Modular ASIC-based System for Large-scale Electrical Stimulation and Recording of Brain Activity in Behaving Animals
M. Szypulska, M. Dwużnik, P. Wiącek, A. Skoczeń, T. Fiutowski, M. Jędraczka, J. Dusik, M.I. Ahmed, W. Dąbrowski, P. Hottowy (AGH Univ. of Science and Techn., Poland), E. Kublik (Nencki Inst. of Experimental Biology, Poland)

The Integrated Transmitter and Receiver Modules for Pulse Oximeter System
C. Kołaciński, A. Szymański, A. Jarosz, E. Kurjata-Pfitzner, J. Wasowski (Institute of Electron Techn., Poland), T. Borejko, K. Siwiec, W. Pleskacz (Warsaw Univ. of Techn., Poland)

Verilog HDL Model Based Thermometer-to-Binary Encoder with Bubble Error Correction
Z. Jaworski (Warsaw Univ. of Techn., Poland)

Modelling Microbolometer Using Matlab/SIMULINK Package with Thermal Noise Sources
J. Nazdrowicz (Lodz Univ. of Techn., Poland)

Quiet Passive Cooling of High Performance Microsystems with Additional Temperature Sensor
A. Samake, P. Kocanda, A. Kos (AGH Univ. of Science and Techn., Poland)

A Novel Closed-form Synthesis Approach for Band-pass Filters with Arbitral End-coupled-reactances
M. Zaradny (Wrocław Univ. of Science and Techn., Poland)

Laser Curing of Inkjet Printed Strain Gauge Structures
O. Kravchuk (Lviv Polytechnic National Univ., Ukraine), Y. Bobitski (Lviv Polytechnic National Univ., Ukraine and Univ. Rzeszow, Poland), M. Reichenberger (Tech. Hochschule Nürnberg, Germany)

Improvement of the Search Method for Parametric Fault Diagnosis of Analog Integrated Circuits
S. Halgas, M. Tadeusiewicz (Lodz Univ. of Techn., Poland)

Class-BD Audio Amplifiers with Common-Mode Free Output
J. Jasielski, S.W. Kuta (Higher Vocational School Tarnow, Poland), W. Machowski (AGH Univ. of Science and Techn., Poland)

Hardware-accelerated Reconstruction of Compressed Neural Signals Based on Inpainting
S. Schmale, H. Kesuma, H. Lange, J. Rust, B. Knoop, D. Peters-Drolshagen, S. Paul (Univ. Bremen, Germany)

Method for Nonlinear Fitting and Impedance Analysis with LCR Meter
R. Malarić, P. Mostarac (Univ. Zagreb, Croatia), G. Petrović (Univ. Split, Croatia), J. Havelka (Univ. Zagreb, Croatia)

Road Structure Analysis Based on Cross-section Images Processing
M. Augustyn, P. Śniatała, R. Kapela, A. Turkot, A. Pożarycki, M. Wyczałek, P. Skrzypczak (Poznan Univ. of Techn., Poland)

A Dedicated Software Environment for Quantitative Evaluation of Various QRS Detectors
N. Henzel, J. Wróbel, K. Horoba (Inst. of Medical Techn. and Equipment, Poland)

New Filtering Approach for Improving Quality of the ECG Signal Recorded During a Non-invasive Electrical Heart Stimulation
J. Gałecka, D. Roj, J. Wróbel, F. Prochaczek, A. Gacek (Inst. of Medical Techn. and Equipment, Poland)

Residual Voltage Analysis for the Development of Efficient Stimulation Methodology in Integrated Circuits
Ł. Kadłubowski, P. Kmon (AGH Univ. of Science and Techn., Poland)

Design and Interfacing Aspects of the Medical Instrumentation for Modern Hospital System for Pregnancy and Labour Monitoring
K. Horoba, J. Jeżewski, J. Wróbel, T. Kupka (Inst. of Medical Techn. and Equipment, Poland), A. Pawlak, R. Czabanski, M. Jeżewski (Silesian Univ. of Techn., Poland)

Detection of Aorta Anatomical Structures Characterized by Various Levels of Pixel Intensity
E. Sobotnicka, J. Wróbel, A. Sobotnicki (Inst. of Medical Techn. and Equipment, Poland)

Terahertz Imaging with GaAs and GaN Plasma Field Effect Transistors Detectors
W. Knap, D. But, N. Dyakonova, D. Coquillat, F. Teppe (Univ. Montpellier and CNRS, France), J. Suszek, A. Siemion, M. Sypek (Warsaw Univ. of Techn., Poland), K. Szkudlarek, G. Cywiński, I. Yahniuk (IHPP Polish Academy of Sciences, Poland)

15:30 Coffee Break during Poster Session

19:00 Closing Ceremony & Conference Banquet

Time **Room B**

09:20 Session 8 (Part 1): Embedded Systems
Chairman: Prof. A. Rybarczyk

A Fault-tolerant Real-time Microcontroller with Multiprocessor Architecture
E. Strollo, A. Trifiletti (Univ. Rome Sapienza, Italy)

A Method for Real-time Data Acquisition Using Matlab Software
K. Sieczkowski, T. Sondej (Military Univ. of Techn., Poland)

A Shared Memory Parameterized and Configurable in FPGA, for Use in Multiprocessor Systems
E. Strollo, A. Trifiletti (Univ. Rome Sapienza, Italy)

Modeling UML Object Event Handling with Petri Nets
W. Szmuc, T. Szmuc (AGH Univ. of Science and Techn., Poland)

Polyhedral Source-to-Source Compiler
D. Adamski, G. Jabłoński, P. Perek, A. Napieralski (Lodz Univ. of Techn., Poland)

11:00 Coffee Break

11:20 Session 8 (Part 2): Embedded Systems
Chairman: Prof. T. Szmuc

Communication Between Agents in Alvis Language
P. Matyasik, M. Szpyrka, M. Wypych, J. Biernacki (AGH Univ. of Science and Techn., Poland)

Priority Management in Alvis Language
M. Szpyrka, A. Biernacka, J. Biernacki, M. Wypych (AGH Univ. of Science and Techn., Poland)

Task Scheduler for Dual-Core Real-Time Systems
L. Kohutka, V. Stopjakova (Slovak Univ. of Techn in Bratislava, Slovakia)

Thermionic Emission Controller with PID Algorithm
B. Kania, J. Sikora (Lublin Univ. of Techn., Poland)

SoC-FPGA Embedded System for Real-time Thermal Image Processing
G. Bieszczad (Military Univ. of Techn., Poland)

13:00 Lunch

19:00 Closing Ceremony & Conference Banquet

Time	Room C

09:20 Special Session II: Data Acquisition and Control Systems in Industry and High Energy Physics
Chairman: Dr. S. Simrock

Closed-loop Laser Stabilization System
P. Plewiński, D. Makowski, A. Mielczarek, A. Napieralski (Lodz Univ. of Techn., Poland)

Design and Implementation of LLRF Station Software Suite in Distributed Control System Used in E-XFEL
F. Makowski, W. Cichalewski, A. Napieralski (Lodz Univ. of Techn., Poland), M. Killenberg, J. Branlard, C. Schmidt (DESY, Germany), A. Piotrowski (FastLogic Sp. z o.o., Poland)

Efficient Uncalibrated Rectification Method for Stereo Vision Systems
P. Perek, D. Makowski, A. Napieralski (Lodz Univ. of Techn., Poland)

Human Machine Interface for Data Acquisition Systems Applied in High Energy Physics
J. Zelaya, D. Makowski, P. Perek, A. Napieralski (Lodz Univ. of Techn., Poland)

SDI Image Acquisition Module for 3D Applications
A. Szubert, D. Makowski, A. Mielczarek, A. Napieralski (Lodz Univ. of Techn., Poland)

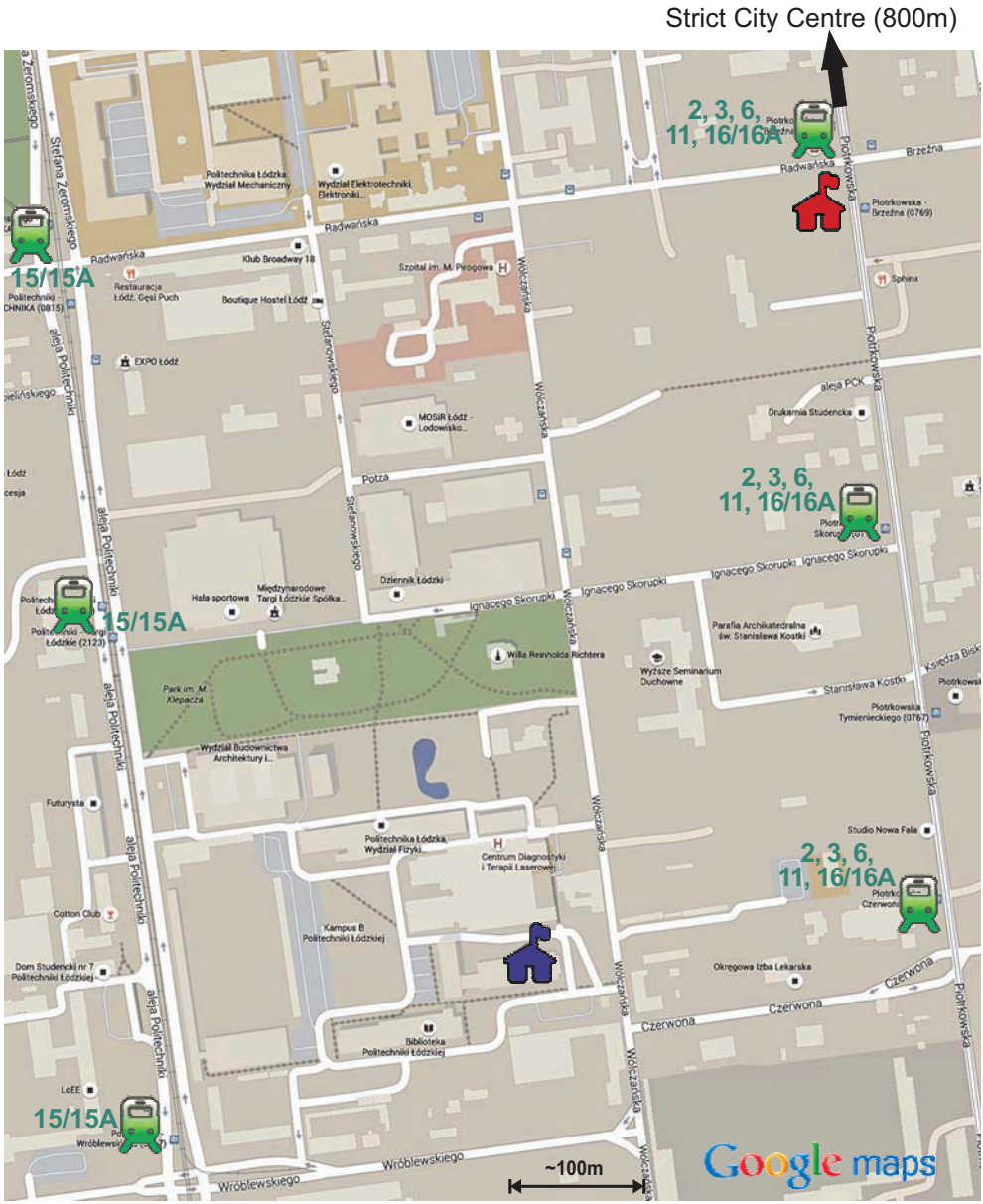
11:00 Coffee Break

11:20 EduMEMS Meeting: Developing Multidomain MEMS Models for Educational Purposes - EduMEMS Close-out Meeting

13:00 Lunch

19:00 Closing Ceremony & Conference Banquet

Łódź City Map



Conference Site
Hotel Holiday Inn
Piotrkowska 229/231

Conference Opening
DMCS
***Wólczańska* 221/223**

Tram Stops