

FOREWORD

About the Conference

The International Semiconductor Conference (CAS) yearly organized by the National Institute for Research and Development in Microtechnologies - IMT Bucharest is in 2024 at its 47th edition.

Over the decades, the conference has established itself as a prestigious platform for presenting the latest research in electronics and micro- and nanotechnologies. Initially known as the Annual Semiconductor Conference, CAS became an international conference in 1991 and adopted its current name in 1996. In 1995, CAS officially became an IEEE-sponsored event, with the support of the IEEE EDS.

The CAS Conference has been for years devoted to physics, design, technology and applications of semiconductor devices and materials, including integrated circuits. Since 1997, the Conference profile has been gradually extended to micro- and nanotechnologies, including micro- and nanoelectronics, micro- and nanosystems, also nanostructures and nanostructured materials.

The Technical Program promises to be stimulating, with three plenary sessions, eight oral presentation sessions, six student paper sessions, and two poster sessions. The program features 99 high-quality presentations, including 13 invited talks and 86 contributed papers.

The Social Program includes:

- CAS 2024 “Get-together” Cocktail, Oct. 8, 20:00 h
- Trip to Posada Hunting Museum, October 10, 14:30 h
- CAS 2024 Banquet including the Best Paper Awards ceremony - October 11, 20:30 h

On behalf of the Organizing Committee of the International Semiconductor Conference (CAS), we are delighted to welcome you to CAS 2024.

Thank you all for your contributions, participation and engagement! We hope you have a fruitful and enriching conference experience and a memorable time in Sinaia. We look forward to welcoming you back to next year’s edition of CAS!

15th of September 2024

Miron Adrian DINESCU

Conference Chairman

ORGANIZING COMMITTEE

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Miron Adrian Dinescu - IMT Bucharest, Romania

Technical Program Chair:

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EDITORS

- Gh. Brezeanu** - National Univ. of Science and Technology POLITEHNICA Bucharest, Romania
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M.L. Ciurea - National Institute of Materials Physics, Bucharest, Romania
D. Cristea - IMT Bucharest, Romania
M.A. Dinescu - IMT Bucharest, Romania
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A. Müller - IMT Bucharest, Romania
R. Müller - IMT Bucharest, Romania
D. Neculoiu - IMT Bucharest, Romania

GENERAL INFORMATION

VENUE AND DATES

The conference will take place from **Wednesday, October 9 to Friday, October 11, 2024, at Hotel Sinaia, Sinaia, Romania.**

Sinaia is a beautiful mountain resort located in the Carpathian Mountains, at 125 Km (by car or by train) from Bucharest, the capital of Romania. The weather in Sinaia is mild and sunny in October, the average temperature being about 10°C.

TECHNICAL PROGRAM

English is the official language of the Conference.

In the oral sessions, the authors should use PowerPoint type presentations. The presentations should not exceed **20 minutes for contributed papers**, respectively **30 minutes for invited papers**, with 5 minutes for discussions included.

2 poster sessions are scheduled in parallel on **October 11**. The posters format should be A0 size. The poster panel will be marked with the corresponding code from the conference programme: Ex. AB.1 (AB=session code, 1=poster 1).

SATELLITE EVENTS at CAS 2024:

⇒ **Workshop “Research Security & Technology Transfer”** organised by IMT with the support of the US Embassy in Bucharest and US Department of State, October 9, h 14:00-17:30

⇒ **Workshop “Bio-Micro-Systems innovation, challenges and future industrial applications”** organised by eBio-hub project, October 10, h 10:00-13:00

⇒ **Workshop organised by IEEE Romania Section Nanotechnology Council Chapter – NANO42 joint to Electron Devices Society Romanian Chapter EDS015**, October 10, h 14:00-18:00

⇒ **Net4Air Workshop organised by NET4Air: A Networking Center for excellence in Nanoelectronic Devices for Air Monitoring**, October 11, h 09:00-13:00

⇒ **Workshop “Semiconductor technologies in Romania - current state and perspectives”**, October 11, h 14:00-17:30

Conference SECRETARIAT

The CAS 2024 Secretariat will be opened on Tuesday, October 8, from 15:00 to 18:00, and daily from 08:30 to 13:00 and from 14:00 to 18:00, during the conference.

SOCIAL EVENTS

CAS 2024 WELCOME COCKTAIL

CAS 2024 “Get-together” Cocktail will be held on Tuesday, October 8, 20:00 h, in Hotel Sinaia Restaurant.

A trip to Posada Hunting Museum is scheduled on Thursday, October 10, starting 14:30 h.

CAS 2024 BANQUET

The Conference Banquet, including the Best papers Awards ceremony, will be held on Friday, October 11, 20:30 h, in Hotel Sinaia Restaurant.

For the registered participants, the costs of all social events are included in the Conference Fee.

TOURISM and ENTERTAINMENT OPPORTUNITIES

The small town of Sinaia, with its famous Peles Castle, formerly the Summer Royal Residence, is a well-known mountain resort in Romania. Sinaia, the so-called "Pearl of Carpathians" (Bucegi chain, with 2500 meters highest altitude) is situated in the Prahova valley and it is the favourite place outside Bucharest for international conferences and high-level meetings.

By foot, by car, by bus or by cable transportation, you can reach very interesting places. One can go to the Peles Royal Castle, from the XIX century, which is the most visited museum in Romania, and to other places of cultural and historical interest, like Pelisor Castle, George Enescu Museum, Sinaia Monastery.

The rocky landscape of the Prahova valley is a paradise for mountain climbers.

You may reach the height of 2000 meters by cable car or by car and enjoy a walk, without any special equipment.

A few kilometres North from Sinaia, the Cantacuzino Castle, situated in the town of Busteni, is open for visit. The castle is surrounded by waterfalls, caves and fountains and is in top castles in Romania in terms of architecture.

The Bran Castle, from the XIV century, recently related to the famous “Dracula”, may be visited in a few hours trip.

A number of hotels and restaurants are providing excellent food and entertainment.

Mountain trips near Sinaia

A few chalets in the Bucegi Mountains may be reached **by car** (Cota 1,400 - elevation 1,400 m, Cuibul Dorului - 2,100 m, Poiana Stanii - 1,300 m etc.).

In other cases, it is a better idea to go **by cabin**: you may take the cabin from Hotel Silva in Busteni (10 Km North of Sinaia, by bus, or minibus) and you will reach immediately Babele ("the Old Ladies" rocks) - 2,206 m, from there you may take (for about two hours) the footpath to Peak "Omu" - 2,505 m, the highest peak and chalet in the region. An easiest trip from the Babele chalet is to go South, following the footpath to Piatra Arsa - 1,950 m, and then to the cabin station Cota 2,000. The same point may be reached by using another cabin (in two steps), from the centre of Sinaia (behind the New Montana Hotel) - Sinaia - Cota 1,400 and Cota 1,400 - Cota 2,000.

Museums and Entertainment in Sinaia

- **Peles Castle Museum** within a walking distance (15-20 minutes) from Sinaia Hotel. Visiting hours: Wednesday: 10:00-17:00; Thursday-Sunday: 09:15-17:00; Monday-Tuesday: closed.
- **Sinaia Monastery** (giving the name of the entire town) is also close to the New Montana Hotel.
- **Sinaia Casino Palace** situated in the Central Park of Sinaia
- A wide range of trips (by car or by train) on the Prahova Valley, from Sinaia to Poiana Tapului, Busteni, Azuga, Predeal and beyond (Brasov and Poiana Brasov).

CAS 2024 International Semiconductor Conference PROGRAM

TUESDAY, OCTOBER 8

15:00- 18:00	Registration
20:00	Welcome Cocktail (Hotel Sinaia Restaurant)

WEDNESDAY, OCTOBER 9

08:00- 09:00	Registration	
	Room 1	
09:00- 09:10	Welcome to CAS 2024 M. A. Dinescu, IMT Bucharest, Romania – CAS 2024 General Chairman	
09:10- 11:10	<p style="text-align: center;">Plenary Session 1 (Invited Papers)</p> Chair: M. A. Dinescu, Romania Gh. Brezeanu, Romania Romolo Marcelli , CNR – IMM Institute for Microelectronics and Microsystems, Rome, Italy Bogdan Tudor , SILVACO, USA Radu-Emil Precup , Politehnica University of Timisoara, Romania Günter Krasser , Infineon Technologies Romania SCS, Romania	
11:10- 11:25	Wolfgang Betz , Physical Electronics, USA	
11:25- 11:40	<i>Coffee break</i>	
	Room 1	Room 2
11:40- 13:00	Nanoscience & Nanoengineering 1. Nanomaterials – <i>Oral presentations</i> Chair: M. L. Ciurea, Romania C. Moldovan, Romania	Integrated Circuits – Student Papers I <i>Oral presentations</i> Chair: F. Draghici, Romania V. Avramescu, Romania

WEDNESDAY, OCTOBER 9

13:00-13:10	PHOTO “REMEMBER CAS 2024”	
13:10-14:00	<i>Lunch</i>	
	Room 1	Room 2
14:00-15:20	Integrated Circuits I <i>Oral presentations</i> Chair: M. Neag, Romania R. Pascu, Romania	Modelling – Student Papers <i>Oral presentations</i> Chair: T. Sandu, Romania C. Pachiu, Romania
15:20-15:30	<i>Coffee break</i>	
15:30-17:10	Microwave & Millimeter Wave Circuits & Systems <i>Oral presentations</i> Chair: R. Marcelli, Italy A. Cismaru, Romania	Nanoscience & Nanoengineering – Student Papers - <i>Oral presentations</i> Chair: M. Simion, Romania M. Brezeanu, Romania
17:10-17:20	<i>Coffee break</i>	
17:20-19:20	Integrated Circuits II <i>Oral presentations</i> Chair: O. Ionescu, Romania Ghe. Pristavu, Romania	Modelling & Semiconductor Devices <i>Oral presentations</i> Chair: L. Dobrescu, Romania D. Neculoiu, Romania

	Room 3
14:00-17:30	Workshop “Research Security & Technology Transfer” organised by IMT with the support of the US Embassy in Bucharest and US Department of State

THURSDAY, OCTOBER 10

	Room 1	
09:00-11:00	<p align="center">Plenary Session 2 (Invited Papers)</p> <p>Chair: O. Buiu, Romania A. Müller, Romania</p> <p>Maria Losurdo, Institute of Chemistry of Condensed Matter and of Technologies for Energy ICMATE-CNR, Italy</p> <p>Luigi Di Benedetto, University of Salerno, Italy</p> <p>Dumitru Sdrulla, Analog Power Conversion-LLC, USA</p> <p>Radu Ionescu, Univ. of Bucharest and SecurifAI, Romania</p>	
11:00-11:15	<p>Shyjumon Ibrahimkutty, Rigaku Europe SE, Germany</p>	
11:15-11:30	<p align="center"><i>Coffee break</i></p>	
	Room 1	Room 2
11:30-12:50	<p align="center">Nanoscience & Nanoengineering II. Nanomaterials</p> <p align="center"><i>Oral presentations</i></p> <p>Chair: A.-M. Lepadatu, Romania A. Tulbure, Romania</p>	<p align="center">Integrated Circuits - Student Papers II</p> <p align="center"><i>Oral presentations</i></p> <p>Chair: A. Antonescu, Romania V. Anghel, Romania</p>
13:00-14:00	<p align="center"><i>Lunch</i></p>	
14:30-17:30	<p align="center"><i>Trip to "Posada" Hunting Museum</i></p>	

	Room 3
10:00-13:00	<p>Workshop "Bio-Micro-Systems innovation, challenges and future industrial applications" organised by eBio-hub project</p>
13:00-14:00	<p align="center"><i>Lunch</i></p>
14:00-18:00	<p>Workshop organised by IEEE Romania Section Nanotechnology Council Chapter - NANO42 joint to Electron Devices Society Romanian Chapter EDS015</p>

FRIDAY, OCTOBER 11

Room 1	
09:00-11:00	<p align="center">Plenary Session 3 (Invited Papers)</p> <p>Chair: R. Müller, Romania D. Dobrescu, Romania</p> <p>Mircea Dragoman, IMT Bucharest, Romania</p> <p>Valentin Serban Teodorescu, National Institute of Materials Physics, Romania</p> <p>Alexandru Takacs, Univ. Paul Sabatier (Toulouse III), LAAS – CNRS, France</p> <p>Neculai Plugaru, IMT Bucharest, Romania</p>
11:00-11:15	Liana Socaciu-Siebert , SPECS Surface Nano Analysis GmbH, Germany
11:15-11:30	<i>Coffee break</i>
Room 1	
11:30-13:10	<p align="center">Microsensors & Optoelectronics</p> <p align="center"><i>Oral presentations</i></p> <p>Chair: D. Cristea, Romania G. Moagar-Poladian, Romania</p>
Room 2	
11:30-13:10	<p align="center">Integrated Circuits – Student Papers III</p> <p align="center"><i>Oral presentations</i></p> <p>Chair: C. Dan, Romania C. Stanescu, Romania</p>
13:00-14:00	<i>Lunch</i>
14:00-15:40	<p align="center">Microsensors & Semiconductor Devices – Student Papers.</p> <p align="center"><i>Oral presentations</i></p> <p>Chair: M. Dragoman, Romania A. Takacs, France</p>
14:00-16:30	<p align="center">Nanoscience & Nanoengineering III</p> <p align="center"><i>Oral presentations</i></p> <p>Chair: D. Dragoman, Romania V. S. Teodorescu, Romania</p>
15:40-16:00	Coffee break
16:30-16:50	Coffee break
16:00-17:30	<p align="center">Poster Session 1. Nanoscience & Nanophotonics</p> <p>Chair: A. Avram, Romania M. Aldrigo, Romania</p>
16:50-18:30	<p align="center">Poster Session 2. Sensors, Advanced Electronic Devices & Circuits</p> <p>Chair: A. Bunea, Romania A. Baracu, Romania</p>
20:30	CAS 2024 Banquet including Best Paper Awards ceremony (Hotel Sinaia Restaurant)
Room 3	
09:00-13:00	Net4Air Workshop organised by NET4Air: A Networking Center for excellence in Nanoelectronic Devices for Air Monitoring
14:00-17:30	Workshop “Semiconductor technologies in Romania - current state and perspectives”

Tuesday, October 8
CAS Secretariat

15:00 - 18:00 Registration

20:00 Welcome Cocktail

Wednesday, October 9, 09:00
Room 1

Welcome to CAS 2024, M. A. Dinescu, IMT Bucharest, Romania, CAS 2024 General Chairman

PLENARY SESSION 1 (Invited Papers)
Session: PS1. Oral presentations

Chair: **M. A. Dinescu**, IMT Bucharest, Romania
Gh. Brezeanu, National Univ. of Science and Technology POLITEHNICA Bucharest, Romania

- PS1.1** PHILOSOPHY, ART, MATHEMATICS, AND HIGH-FREQUENCY APPLICATIONS OF TRIANGULAR SHAPES: FROM PLATO TO SIERPINSKI AND BEYOND, **R. Marcelli**, National Research Council of Italy, Institute for Microelectronics and Microsystems, Italy
09:10
- PS1.2** ADVANCES IN CIRCUIT SIMULATION DEVICE MODELS FOR REAL-WORLD APPLICATIONS, **B. Tudor**, SILVACO, USA
09:40
- PS1.3** CLASSICAL AND FUZZY CONTROLLERS FOR AN OPTIMALLY TUNED MODEL OF A STRIP WINDING SYSTEM, **A.-I. Szedlak-Stinean, R.-E. Precup***, **N.-L. Iancu**, Politehnica Univ. of Timisoara, Romania
10:10
- PS1.4** AIMING HIGH: INFINEON TECHNOLOGIES TO OPERATE IN ROMANIA THE LARGEST SEMICONDUCTOR R&D CENTER IN THE SOUTHEAST EUROPE, **G. Krasser**, Infineon Technologies Romania SCS, Romania
10:40
- 11:10** ANALYSIS OF BURIED INTERFACES FOR DEVICE TECHNOLOGY BY SOFT AND HARD X-RAY PHOTOEMISSION, **J. Mann, N. Biderman, W. Betz***, **K. Artyushkova**, Physical Electronics, USA

11:25-11:40 – Coffee break

Wednesday, October 9, 11:40

Room 1

NANOSCIENCE & NANOENGINEERING I.

NANOMATERIALS

Session: N&N1. Oral presentations

Chair: **M. L. Ciurea**, National Institute of Materials
Physics, Romania
C. Moldovan, IMT Bucharest, Romania

- N&N1.1** MXENES AND POLYMERIC COLLOIDS
11:40 NANOCOMPOSITES FOR EMI SHIELDING,
**E. Rusen¹, A. Mocanu^{1,2}, O. Brincoveanu^{2,3},
A. Boldeiu², C. Romanițan², M. Aldrigo²,
S. Iordănescu², A. Diacon^{1,4}, R. Gavrilă², G. Toader⁴,**
¹National Univ. of Science and Technology
POLITEHNICA Bucharest, ²IMT Bucharest, ³Research
Institute of the Univ. of Bucharest ICUB Bucharest,
⁴Military Technical Academy „Ferdinand I”, Romania
- N&N1.2** CARBON NANOHORNS - PVP NANOCOMPOSITE
12:00 AS SENSING LAYER FOR RESISTIVE HUMIDITY
MONITORING: PRELIMINARY RESULTS,
**B.-C. Serban¹, N. Dumbravescu¹, O. Buiu¹,
M. Bumbac^{2,3}, C. Pachiu¹, M. Brezeanu⁴,
G. Craciun¹, C.-M. Nicolescu³,
R. Marinescu¹, C. Cobianu^{5,6},** ¹IMT Bucharest,
²Valahia Univ. of Targoviste, ³Institute of
Multidisciplinary Research for Science Technology,
Valahia Univ. of Targoviste ⁴National Univ. of Science
and Technology POLITEHNICA Bucharest, ⁵Academy
of Romanian Scientists, ⁶eBio-hub Research Center,
National Univ. of Science and Technology
POLITEHNICA Bucharest, Romania
- N&N1.3** X-RAY DIFFRACTION INVESTIGATIONS OF
12:20 THREADING DISLOCATION ANNIHILATION IN
GAN HETEROEPITAXIAL LAYERS,
C. Romanitan¹, A. V. Kuchuk^{2,3}, M. Barchuk⁴, ¹IMT
Bucharest, Romania ²Institute for Nanoscience and
Engineering, Univ. of Arkansas, USA, ³Lashkaryov
Institute of Semiconductor Physics, National Academy
of Sciences of Ukraine, Ukraine, ⁴Institute of Materials
Science, TU Bergakademie Freiberg, Germany

N&N1.4 INVESTIGATION OF ELECTRICAL TRANSPORT
12:40 IN NANOSTRUCTURED V_2O_5 THIN FILMS,
R. Plugaru, S. Vulpe, F. Comanescu, G. Craciun,
IMT Bucharest, Romania

13:00-13:10 – PHOTO “REMEMBER CAS 2024”

13:10-14:00 – Lunch

Wednesday, October 9, 11:40
Room 2

**INTEGRATED CIRCUITS –
STUDENT PAPERS I**
Session: IC-S.1 Oral presentations

Chair: **F. Draghici**, National Univ. of Science and
Technology POLITEHNICA Bucharest, Romania
V. Avramescu, IMT Bucharest, Romania

- IC-S.1.1** AUTOMATED OP-AMP MEASUREMENT SETUP
11:40 FOR AC PARAMETERS, **A. R. Idor**^{1,2}, **V. Bricicaru**²,
P. B. Imbrea², **C. Stanescu**^{1,2}, **D. Dobrescu**¹,
L. Dobrescu², ¹National Univ. of Science and
Technology POLITEHNICA Bucharest, ²onsemi,
Romania
- IC-S.1.2** A NOVEL CLASS-AB BUFFER FOR LDOs WITH
12:00 HIGH ACCURACY AND FAST TRANSIENTS, **P.-R.**
Moldovan¹, **G.-G. Simeon**², **R.-C. Onet**¹, **M. Neag**¹,
¹Technical Univ. of Cluj-Napoca, ²Infineon
Technologies, Romania
- IC-S.1.3** CIRCUIT-LEVEL LINEARITY STUDY OF RING
12:20 OSCILLATORS FOR VCO-BASED ADCs,
A. Ciobanășu^{1,3}, **I.-I. Cristea**², **A. Cracan**³,
R.-G. Bozomitu³, ¹Infineon Technologies, Iași,
²Infineon Technologies, Bucharest, Romania, ³Technical
Univ. “Gheorghe Asachi” Iași, Romania
- IC-S.1.4** ANALYSIS OF MISMATCH EFFECTS IN MATRIX-
12:40 BASED SYSTEMS USING DYNAMIC ELEMENT
MATCHING (OUT OF THE CHAINS AND INTO
THE MATRIX?), **A. Calinescu**¹, **T. Antonovici**²,
M. Enachescu², ¹National Univ. of Science and
Technology POLITEHNICA Bucharest, Romania,
²Delft Univ. of Technology, The Netherlands

13:00-13:10 – PHOTO “REMEMBER CAS 2024”

13:10-14:00 – Lunch

Wednesday, October 9, 14:00
Room 1

INTEGRATED CIRCUITS I
Session: IC.1. *Oral presentations*

Chair: **M. Neag**, Technical Univ. of Cluj-Napoca, Romania
R. Pascu, IMT Bucharest, Romania

- IC.1.1** A CALIBRATION TECHNIQUE OF CHARGE-PUMP PLL READOUT CIRCUIT FOR SiC-MOS CAPACITOR HYDROGEN SENSORS, **A. Enache, F. Draghici, Gh. Brezeanu**, National Univ. of Science and Technology POLITEHNICA Bucharest, Romania
14:00
- IC.1.2** A 36 V CHOPPER OFFSET-STABILIZED OPERATIONAL AMPLIFIER WITH FAST SETTLING AND REDUCED INPUT TRANSIENT CURRENTS, **C. Stanescu, A. Veselu, C. Dinca, C. Constantin, O. Profirescu, V. Bricicaru**, ON Semiconductor Romania S.R.L., Romania
14:20
- IC.1.3** A PROCEDURAL SIZING APPROACH FOR LDO MODULES USING AnaGen METHODOLOGY, **E. Gheorghita^{1,2}, I. Câmpanu¹, F. Renneke¹, I.-A. Ilie^{1,3}, G. Dalla Colletta^{1,4}, R. Oneț^{1,2}**, ¹Infineon Technologies AG, ²Technical Univ. of Cluj-Napoca, Romania, ³National Univ. of Science and Technology POLITEHNICA Bucharest, Romania, ⁴Univ. degli studi di Udine, Italy
14:40
- IC.1.4** METHODS FOR OUTPUT CURRENT COMPENSATION OF FLOATING GATE DRIVERS, **V. Moise^{1,2}, R. Puscasu², Gh. Brezeanu¹**, ¹National Univ. of Science and Technology POLITEHNICA Bucharest, ²Infineon Technologies Romania
15:00

15:20-15:30 – Coffee break

Wednesday, October 9, 14:00
Room 3

Workshop “Research Security & Technology Transfer”
organised by IMT with the support of the US Embassy
in Bucharest and US Department of State

Wednesday, October 9, 14:00

Room 2

MODELLING – STUDENT PAPERS

Session: M-S. *Oral presentations*

Chair: **T. Sandu**, IMT Bucharest, Romania
C. Pachiu, IMT Bucharest, Romania

- M-S.1** SIMULATION OF LOGIC CIRCUITS USING
14:00 BURSTING NEURON MODELS, **M. Popescu**^{1,2},
H. Zoltan¹, **A. Srinivasulu**³, **C. Ravariu**¹,
R. E. Doncu², ¹National Univ. of Science and
Technology POLITEHNICA Bucharest, ²“Carol
Davila” Univ. of Medicine and Pharmacy, Bucharest,
Romania, ³Mohan Babu Univ., India
- M-S.2** A MACHINE LEARNING APPROACH FOR
14:20 OPTIMIZATION OF AUTOMOTIVE POWER
SWITCH DEFINITION SPACE IN MULTI-
APPLICATION UTILIZATION, **S. Beladi**¹,
L. Maurer¹, **J. Stricker**², **G. Pelz**², ¹Univ. of the
Bundeswehr Munich, ²Infineon Technologies AG
Munich, Germany
- M-S.3** SEPIC DC/DC CONVERTER COMPLETE
14:40 AVERAGE MODEL FOR DCM OPERATION,
E.-D.-A. Vulpe, **C. Dan**, National Univ. of Science and
Technology POLITEHNICA Bucharest, Romania
- M-S.4** SYSTOLIC ARRAY MATRIX MULTIPLICATION
15:00 ACCELERATOR, **A. Puscasu**^{1,2}, **C. B. Ciobanu**^{1,2},
O. Buiu¹, ¹IMT Bucharest, ²Transilvania Univ. of
Brasov, Romania

15:20-15:30 – Coffee break

Wednesday, October 9, 14:00

Room 3

**Workshop “Research Security & Technology Transfer”
organised by IMT with the support of the US Embassy
in Bucharest and US Department of State**

Wednesday, October 9, 15:30

Room 1

**MICROWAVE & MILLIMETER
WAVE CIRCUITS & SYSTEMS**
Session: MW. Oral presentations

Chair: **R. Marcelli**, CNR – IMM Institute for
Microelectronics and Microsystems, Italy
A. Cismaru, IMT Bucharest, Romania

MW.1 ON THE VECTOR NETWORK ANALYZER
15:30 MEASUREMENT RESULTS OBTAINED AFTER
SOLT AND SOLR CALIBRATION METHODS, AND
COMPARISON WITH HFSS RESULTS, **S. Simion**,
MTA – Ferdinand I, Bucharest, Romania

MW.2 INVESTIGATION OF ELECTROMAGNETIC
15:50 FEEDTHROUGH IN SPIN WAVE BASED
MAJORITY GATES, **A.-C. Bunea¹**, **F. Ciubotaru²**,
F. Meng², **C. Adelman²**, **O.-G. Profirescu³**,
D. Neculoiu^{1,3}, ¹IMT Bucharest, Romania, ²IMEC,
Belgium, ³National Univ. of Science and Technology
POLITEHNICA Bucharest, Romania

MW.3 ASYMMETRIC ACOUSTIC DRIVEN
16:10 FERROMAGNETIC RESONANCE ON ScAlN/Si
BASED STRUCTURES, **M.-C. Ciornei**, **A. Florescu**,
M. Nedelcu, **C. Nastase**, **D. Vasilache**, **S. Iordanescu**,
A. Dinescu, **A. Muller**, IMT-Bucharest, Romania

MW.4 THERMAL EFFECTS IN SURFACE ACOUSTIC
16:30 WAVE DEVICES INDUCED BY DAMPING,
G. Boldeiu, **A. Nicoloiu**, **C. Nastase**, **M. Nedelcu**,
I. Zdru, **D. Vasilache**, **A. Dinescu**, **A. Muller**, IMT -
Bucharest, Romania

MW.5 A COMPARATIVE STUDY ON THE PARALLEL
16:50 AND SERIES DOHERTY MM-WAVE POWER
AMPLIFIER FOR 5G NR APPLICATIONS, **E. A. Aly**,
M. Bahaa Alabd, **M. Mobarak**, **M. A.Y. Abdalla**,
Cairo Univ., Giza, Egypt

17:10-17:20 – Coffee break

Wednesday, October 9, 15:30

Room 2

**NANOSCIENCE & NANOENGINEERING –
STUDENT PAPERS**

Session: N&N-S. Oral presentations

Chair: **M. Simion**, IMT Bucharest, Romania
M. Brezeanu, PwC, Romania

- N&N-S.1** 15:30 PHOTODEGRADATION AND ANTIBACTERIAN PROPERTIES OF TiO₂ AND Ag-TiO₂ NANOPARTICLES OBTAINED BY ELECTROCHEMICAL SYNTHESIS FROM GREEN LIQUIDS, **I.-C. Petcu**^{1,2}, **A. T. S. C. Brandão**³, **I. Mihalache**², **L. M. Veca**², **O. Brâncoveanu**², **C. Romanitan**², **C. Pereira**³, **L. Anicăi**⁴, **C. Busuioc**¹, **S. P. State**^{2,5}, ¹Faculty of Chemical Engineering and Biotechnologies, National Univ. for Science and Technology POLITEHNICA Bucharest, Romania, ²IMT Bucharest, Romania, ³CIQUP, Univ. of Porto, Portugal, ⁴Center of Surface Science and Nanotechnology, National Univ. for Science and Technology POLITEHNICA, Bucharest, ⁵Faculty of Medical Engineering, National Univ. for Science and Technology POLITEHNICA Bucharest, Romania
- N&N-S.2** 15:50 ULTRA-LOW-POWER GRAPHENE-NANORIBBON-BASED CURRENT-STARVED RING OSCILLATOR, **F.-S. Dumitru**¹, **M. Enachescu**¹, **A. Antonescu**¹, **N. Cucu-Laurenciu**², **S. Cotofana**³, ¹National Univ. for Science and Technology POLITEHNICA Bucharest, Romania, ²IMAPP, Radboud Univ., The Netherlands, ³Delft Univ. of Technology, The Netherlands
- N&N-S.3** 16:10 OPTIMIZATION OF THICKNESS OF NANOCRYSTALLINE GRAPHITE NANOWALLS IN FLEXIBLE ELECTROCHEMICAL SENSORS FOR THE DETECTION OF ANTHRACENE, **M. Stoian**^{1,2}, **O. Simionescu**¹, **C. Romanitan**¹, **G. Craciun**¹, **A. Radoi**¹, ¹IMT Bucharest, ²Univ. of Bucharest, Romania

N&N- S.4 16:30 MO DOPANT CONCENTRATION EFFECT ON NANOSTRUCTURED WO₃ THIN FILMS GROWN BY SPRAY DEPOSITION SURFACE PROPERTIES, **A. G. M. Popescu^{1,2}, I. V. Tudose^{3,4}, C. Romanitan¹, O. Brincoveanu¹, R. Gavrilă¹, M. Manica¹, C. Păciu¹, P. Schiopu², M. Vladescu², P. Pascariu^{1,5}, M. P. Suchea^{1,3}**, ¹IMT Bucharest, ²National Univ. of Science and Technology POLITEHNICA Bucharest, ³Hellenic Mediterranean Univ., Greece, ⁴Univ. of Crete, Greece, ⁵Petru Poni” Institute of Macromolecular Chemistry, Romania

17:10-17:20 – Coffee break

Wednesday, October 9, 17:20
Room 1

INTEGRATED CIRCUITS II

Session: IC.2. Oral presentations

Chair: **O. Ionescu**, IMT Bucharest, Romania

Gh. Pristavu, National Univ. of Science and
Technology POLITEHNICA Bucharest, Romania

IC.2.1 LOW QUIESCENT CURRENT TRACKING LDO
17:20 FOR AUTOMOTIVE APPLICATIONS, **A. Battigelli**¹,
M. Neag¹, **C. S. Plesa**², ¹Technical Univ. of Cluj-
Napoca, ²Infineon Technologies Romania

IC.2.2 HIGH PERFORMANCE ANALOG SWITCH BASED
17:40 ON BODY BIAS REDUCTION, **I.-B. Brezeanu**¹,
F. Drăghici², **Gh. Brezeanu**², ¹onsemi Romania,
²National Univ. of Science and Technology
POLITEHNICA Bucharest

IC.2.3 ADVANCED AUTOMATIC DEVICE
18:00 TEMPERATURE CHARACTERIZATION FOR
HYBRID STEM Learning, **A. M. Antonescu**,
F.-S. Dumitru, **M. Enachescu**, National Univ. of
Science and Technology POLITEHNICA Bucharest

IC.2.4 2.5 A, DUAL MODE, WIDE EFFICIENCY BAND,
18:20 HYSTERETIC BUCK CONTROLLER FOR
AUTOMOTIVE APPLICATIONS, **F. Dumitru**^{1,2},
B. Dumitriu¹, **Gh. Brezeanu**², ¹Infineon Technologies
Romania, ²National Univ. of Science and Technology
POLITEHNICA Bucharest

Wednesday, October 9, 17:20

Room 2

**MODELLING &
SEMICONDUCTOR DEVICES**
Session: M&SD. Oral presentations

Chair: **L. Dobrescu**, National Univ. of Science and
Technology POLITEHNICA Bucharest, Romania
D. Neculoiu, IMT Bucharest, Romania

- M&SD.1** TCAD DESIGN OF SIMPLE TEMPERATURE
17:20 SENSORS WITH 8%/K SENSITIVITY
IMPLEMENTED WITH POLYCRYSTALLINE
SILICON SOURCE-GATED TRANSISTORS,
E. Bestelink, **R. A. Sporea**, Advanced Technology
Institute, Univ. of Surrey, UK
- M&SD.2** EXTRACTION OF PACKAGE RELATED STRESS
17:40 EFFECTS IN 180 NM SOI TECHNOLOGY,
N. Bonev¹, **D. M. Nuernbergk**², **C. Lang**², ¹Melexis
Bulgaria, ²Melexis GmbH Germany
- M&SD.3** NEW CODED SEQUENCES FOR ACCURATE
18:00 TIME-OF-FLIGHT MEASUREMENTS WITH
RESONANT ULTRASONIC SENSORS,
M. Gologanu, **V. Avramescu**, **T. Sandu**, IMT
Bucharest, Romania
- M&SD.4** SILICON NANOWIRES-BASED SCHOTTKY
18:20 DIODES, **R. Pascu**¹, **Gh. Pristavu**², **I. Mihalache**¹,
M. Popescu¹, **M. Simion**¹, **G. Craciun**¹,
P. Varasteanu¹, **S. Vulpe**¹, **Gh. Brezeanu**², ¹IMT
Bucharest, Romania, ²National Univ. of Science and
Technology POLITEHNICA Bucharest, Romania
- M&SD.5** MODELING STRESS EFFECTS FROM FIN
18:40 ISOLATION IN 7NM FinFET TRANSISTORS,
A. Rossoni^{1,2}, **Z.M. Kovacs-Vajna**¹, **L. Colalongo**¹,
R. Khamankar, **S. Saxena**², **T. Brozek**², ¹Univ. of
Brescia, Italy, ²PDF Solutions, USA
- M&SD.6** AMORPHOUS InGaZnO MULTIMODAL
19:00 TRANSISTORS WITH A SIMPLIFIED GATE
STACK DESIGN, **E. Bestelink**¹, **D. C. Corsino**²,
F. Catania², **G. Cantarella**³, **N. Munzenrieder**²,
R. A. Sporea¹, ¹Advanced Technology Institute, Univ.
of Surrey, UK, ²Free Univ. of Bozen-Bolzano, Italy,
³Univ. of Modena and Reggio Emilia, Italy

Thursday, October 10, 09:00

Room 1

PLENARY SESSION 2 (Invited Papers)

Session: PS2. Oral presentations

Chair: **O. Buiu**, IMT Bucharest, Romania

A. Müller, IMT Bucharest, Romania

PS2.1 GAME CHANGE BY PHASE CHANGE
09:00 MATERIALS AND DEVICES, **M. Losurdo**, Institute of Chemistry of Condensed Matter and of Technologies for Energy ICMATE-CNR, Italy

PS2.2 PERFORMANCE AND UNDERSTANDING OF 4H-SIC ELECTRON DEVICES AT LOW TEMPERATURE RANGE, **L. Di Benedetto^{1*}**, **N. Rinaldi¹**, **G. D. Licciardo¹**, **R. Liguori¹**, **A. Rubino¹**, **A. May²**, **M. Rommel²**, ¹Univ. of Salerno, Italy, ²Fraunhofer Institute for Integrated Systems and Device Technology (IISB), Germany

PS2.3 BEYOND THE BOUNDARIES OF STATE-OF-THE-ART POWER SEMICONDUCTOR DEVICES, **D. G. Sdrulla^{1,2*}**, **A. Gendron²**, **N. Barr²**, **M. Held²**, **S.W. Chen²**, **A. W. Gu²**, **G. Brezeanu¹**, **G. Pristavu¹**, **F. Draghici¹**, **R. Pascu^{1,3}**, ¹National Univ. of Science and Technology POLITEHNICA Bucharest, Romania, ²Analog Power Conversion LLC, U.S.A., ³IMT Bucharest, Romania

PS2.4 MULTIMODAL NEURAL METHODS IN MEDICAL
10:30 IMAGING, **R. Ionescu**, Univ. of Bucharest and SecurifAI, Romania

11:00 COMPOUND SEMICONDUCTOR MATERIAL EVALUATION BY HIGH RESOLUTION X-RAY DIFFRACTION, **S. Ibrahimkutty**, Rigaku Europe SE, Germany

11:15-11:30 – Coffee break

Thursday, October 10, 10:00

Room 3

Workshop “Bio-Micro-Systems innovation, challenges and future industrial applications” organised by eBio-hub project

Thursday, October 10, 11:30

Room 1

NANOSCIENCE & NANOENGINEERING II.

NANOMATERIALS

Session: N&N2. Oral presentations

Chair: **A. M. Lepadatu**, National Institute of Materials
Physics, Romania

A. Tulbure, Univ. "1 decembrie 1918" Alba Iulia,
Romania

N&N2.1 ELECTRODEPOSITION OF PRUSSIAN BLUE
11:30 NANOPARTICLES ON GRAPHENE AS
ARTIFICIAL ENZYMES FOR THE DEVELOPMENT
OF ENVIRONMENTAL SENSORS, **L. A. Dinu**,
O. Brîncoveanu, **C. Romanitan**, **C. Pachiu**, IMT
Bucharest, Romania

N&N2.2 INFLUENCE OF ADDITIVES ON AG
11:50 ELECTRODEPOSITION FROM DEEP EUTECTIC
SOLVENTS, **S State**^{1,2}, **C. Baumer**³, **O. Brincoveanu**¹,
C. Romanitan¹, **A. Ispas**³, **A. Bund**³, **M. Enachescu**⁴,
L. Anicai⁴, ¹IMT Bucharest, Romania, ²Faculty of
Medical Engineering, National Univ. of Science and
Technology POLITEHNICA Bucharest, Romania,
³Ilmenau Univ. of Technology, Germany, ⁴Center of
Surface Science and Nanotechnology, National Univ. of
Science and Technology POLITEHNICA Bucharest,
Romania

N&N2.3 SERS ENHANCED RAMAN MAPPING VIA SELF-
12:10 ASSEMBLY OF SILVER NANOCUBES, **C. Pachiu**,
A. Boldeiu, **O. Brincoveanu**, IMT Bucharest, Romania

N&N2.4 COPPER OXIDE NANOSTRUCTURES AS
12:30 DECORATORS FOR FEASIBLE SERS
PLATFORMS, **A. Boldeiu**, **C. Pachiu**, **O. Simionescu**,
C. Romanitan, **O. Brancoveanu**, **G. Craciun**, IMT
Bucharest, Romania

13:00-14:00 – Lunch

14:30 – Trip to "Posada" Hunting Museum

Thursday, October 10, 14:00

Room 3

Workshop organised by IEEE Romania Section
Nanotechnology Council Chapter - NANO42 joint to
Electron Devices Society Romanian Chapter EDS015

Thursday, October 10, 11:30

Room 2

**INTEGRATED CIRCUITS –
STUDENT PAPERS II**
Session: IC-S.2. Oral presentations

Chair: **A. Antonescu**, National Univ. of Science and
Technology POLITEHNICA Bucharest, Romania
V. Anghel, ON Semiconductor, Romania

**IC-S.2.1 ANALYSIS OF THE BOOTSTRAPPED GaN LOGIC
11:30 GATE FAMILY, P.-C. Medinceanu, M. Enachescu,**
National Univ. of Science and Technology
POLITEHNICA Bucharest, Romania

**IC-S.2.2 STUDY ON MINIMIZING NOISE IN SEVERAL
11:50 CMOS BANDGAP VOLTAGE REFERENCES,
I.-T. Goia¹, I. Câmpanu², M. Neag¹, R. Oneț¹,**
¹Technical Univ. of Cluj-Napoca, ²Infineon
Technologies, Romania

**IC-S.2.3 WHEATSTONE QUARTER-BRIDGE BASED
12:10 RESISTIVE SMART SENSORS FOR IoT
APPLICATIONS, M. Serbanescu¹, N. Dumbravescu²,
Gh. Pristavu¹, V. Avramescu², B. Serban²,
F. Draghici¹, O. Buiu², Gh. Brezeanu¹,** ¹National
Univ. of Science and Technology POLITEHNICA
Bucharest, ²IMT Bucharest, Romania

**IC-S.2.4 A LOW OFFSET PING-PONG HYSTERESIS
12:30 COMPARATOR FOR MAGNETIC SENSORS,
A. Obuhov¹, D.-I.-D. Stoica^{2,3}, Ioan-Alexandru Nica³,
A. Cracan¹,** ¹“Gheorghe Asachi” Technical Univ. of
Iasi, ²National Univ. of Science and Technology
POLITEHNICA Bucharest, ³Infineon Technologies,
Romania

13:00-14:00 – Lunch

14:30 – Trip to "Posada" Hunting Museum

Thursday, October 10, 14:00

Room 3

**Workshop organised by IEEE Romania Section
Nanotechnology Council Chapter - NANO42 joint to
Electron Devices Society Romanian Chapter EDS015**

Friday, October 11, 09:00

Room 1

PLENARY SESSION 3 (Invited Papers)
Session: PS3. Oral presentations

Chair: **R. Müller**, IMT Bucharest, Romania

D. Dobrescu, National Univ. of Science and
Technology POLITEHNICA Bucharest, Romania

PS3.1 ULTRATHIN FERROELECTRIC-BASED
09:00 NANO-ELECTRONIC DEVICES AND THEIR
APPLICATIONS, **M. Dragoman**^{1*}, **M. Aldrigo**¹,
D. Dragoman^{2,3}, **S. Iordanescu**¹, **A. Dinescu**¹,
S. Vulpe¹, **M. Modreanu**⁴, ¹IMT Bucharest, ²Univ. of
Bucharest, ³Academy of Romanian Scientists,
Romania, ⁴Tyndall National Institute-Univ. College
Cork, Ireland

PS3.2 NANOSTRUCTURE OF BiFeO₃ And LaFeO₃
09:30 EPITAXIAL FILMS OBTAINED BY PLD FOR
PHOTOCHEMISTRY APPLICATIONS,
V. S. Teodorescu, National Institute of Materials
Physics, Romania

PS3.3 BATTERY-FREE WIRELESS SENSORS USING
10:00 SIMULTANEOUSLY WIRELESS INFORMATION
AND POWER TRANSFER FOR IoT
APPLICATIONS, **A. Takacs**^{1,2}, **G. Loubet**^{2,3},
D. Dragomirescu^{2,3}, ¹Univ. of Toulouse III Paul
Sabatier¹, ²LAAS – CNRS, ³INSA Toulouse France

PS3.4 MODELING FERROELECTRIC INTERFACES
10:30 USING DFT METHODS, **N. Plugaru**, IMT Bucharest,
Romania

11:00 EnviroMETROS – A NOVEL SURFACE AND
MULTILAYER THIN FILM ANALYSIS TOOL,
L. Socaciu-Siebert, SPECS Surface Nano Analysis
GmbH, Germany

11:15–11:30 – Coffee break

Friday, October 11, 09:00

Room 3

**Net4Air Workshop organized by NET4Air: A
Networking Center for excellence in Nanoelectronic
Devices for Air Monitoring**

Friday, October 11, 11:30

Room 1

**MICROSENSORS &
OPTOELECTRONICS**
Session: Ms&O. Oral presentations

Chair: **D. Cristea**, IMT Bucharest, Romania

G. Moagar-Poladian, IMT Bucharest, Romania

Ms&O.1 ENHANCEMENT OF MICROBIAL FUEL CELLS
11:30 PERFORMANCE USING CARBON CLOTH

ELECTRODES, **D. Randjelović¹**, **K. Joksimović¹**,
S. Miletić¹, **B. Popović¹**, **A. Žerađanin¹**, **P. Poljak¹**,
V. Bešković², ¹Institute of Chemistry, Technology and
Metallurgy, National Institute of the Republic of Serbia,
Univ. of Belgrade, Republic of Serbia, ²Faculty of
Chemistry, Univ. of Belgrade

Ms&O.2 LINQSTAT-BASED TOUCH SENSOR KEYBOARD
11:50 FOR PHYSICAL ACCESS SECURITY, **C.-O. Opreș**,

T. A. Pruteanu, **A. Drăgulescu**,
A.-M. Drăgulescu, **P.-L. Milea**, National Univ. of
Science and Technology POLITEHNICA Bucharest,
Romania

Ms&O.3 IN THE RUSH FOR THE NEW BLACK GOLD:
12:10 PLASMONIC AND THERMOPLASMONICS

PROPERTIES OF NANOPOROUS GOLD,
P. Varasteanu, IMT Bucharest, Romania

Ms&O.4 ON-CHIP WAVEFRONT SHAPING WITH
12:30 REWRITABLE PHASE-CHANGE

METASURFACES, **S. Zarei**, Sharif Univ. of
Technology, Iran

Ms&O.5 ECO-FRIENDLY $KGeCl_3$ SOLAR CELLS:
12:50 PERFORMANCE ENHANCEMENT THROUGH HTL

ENGINEERING, **S. Yasin¹**, **Z. Abu Waar²**,
M. Moustafa³, ¹College of Integrative Studies,
Abdullah Al Salem Univ., Kuwait, ²College of Science,
The Univ. of Jordan, Jordan, ³School of Sciences and
Engineering, The American Univ. in Cairo, Egypt

13:10-14:00 – Lunch

Friday, October 11, 11:30
Room 2

**INTEGRATED CIRCUITS –
STUDENT PAPERS III**
Session: IC-S.3. Oral presentations

Chair: **C. Dan**, National Univ. of Science and Technology
POLITEHNICA Bucharest, Romania
C. Stanescu, ON Semiconductor

- IC-S.3.1** CURRENT RECYCLING-BASED LDO FOR LARGE
11:30 LOAD APPLICATIONS, **V. Lupoi¹**, **T. F. Sălăjan²**,
R. Oneț¹, **M. Neag¹**, ¹Technical University of Cluj-
Napoca, ²Infineon Technologies, Romania
- IC-S.3.2** TEA/XTEA BRUTE-FORCE CRACKER FOR CPU,
11:50 GPU AND FPGA, **C.-E. Vasile**, **C. Bîră**,
G.-V. Popescu, National Univ. of Science and
Technology POLITEHNICA Bucharest, Romania
- IC-S.3.3** CRYPTOGRAPHY CORE IMPLEMENTATION
12:10 STARTING FROM OPEN-SOURCE RTL,
T. Margineanu, **H.-R. Enescu**, **C.-E. Vasile**,
M. Enachescu, National Univ. of Science and
Technology POLITEHNICA Bucharest, Romania
- IC-S.3.4** THE JACK-OF-ALL-TRADES FOR DUAL-
12:30 CHANNEL GALVANICALLY ISOLATED GATE
DRIVERS: A MULTI-FUNCTION PIN FOR DEAD-
TIME CONTROL, **A.-G. Banu^{1,2}**, **S. Stamate^{1,2}**,
V. Anghel², **I. Hurez^{1,2}**, **S. Mihalache^{1,3}**, ¹National
Univ. of Science and Technology POLITEHNICA
Bucharest, Romania, ²onsemi Romania, ³Research
Institute for Artificial Intelligence “Mihai Draganescu”,
Romanian Academy, Romania

13:00-14:00 – Lunch

Friday, October 11, 14:00

Room 1

**MICROSENSORS &
SEMICONDUCTOR DEVICES**

Student Papers

Session: M&SD-S. Oral presentations

Chair: **M. Dragoman**, IMT Bucharest, Romania

A. Takacs, LAAS – CNRS, France

- M&SD-S.1**
14:00 A CONTINUOUS-TIME SIGMA-DELTA ADC FOR CHOPPED SENSORS WITH DIGITAL ONLY DEMODULATION, **D.-I.-D. Stoica**^{1,2}, **I.-A. Nica**³, **A. Ciobanaşu**^{3,4}, **Gh. Brezeanu**², ¹Infineon Technologies, Bucharest, ²National Univ. of Science and Technology POLITEHNICA Bucharest, ³Infineon Technologies, Iasi, ⁴Technical Univ. “Gheorghe Asachi”, Iasi, Romania
- M&SD-S.2**
14:20 EVALUATION OF LDMOS DEVICE’S BEHAVIOR AT CRYOGENIC TEMPERATURES, **M. Abu Zahra**^{1,2}, **J. Repp**¹, **M. Hartmann**¹, **M. Brandl**¹, **R. Brederlow**², ¹Infineon Technologies AG, ²Technical Univ. of Munich, Germany
- M&SD-S.3**
14:40 OPTIMIZING ALUMINIUM/SILICON TEMPERATURE GRADIENT ZONE MELTING PROCESS FOR POWER DEVICE PERIPHERY, **A. Audebert**¹, **B. Morillon**², **B. Le Borgne**¹, **G. Gautier**¹, ¹GREMAN UMR-CNRS 7347, INSA Centre Val de Loire, Univ. de Tours, ²STMicroelectronics, France
- M&SD-S.4**
15:00 CAN THRESHOLD MEMORY SWITCHING MEMRISTOR BE EFFECTIVELY UTILIZED FOR THE HARDWARE IMPLEMENTATION OF BRAIN-INSPIRED NEUROMORPHIC SYSTEMS?, **M. S. Yadav**, **B. Rawat**, Indian Institute of Technology Ropar, India

M&SD- S.5 AREA AND ENERGY EFFICIENT QUANTUM
TUNNELING BASED THERMAL SENSOR ON
15:20 45NM RFSOI TECHNOLOGY, **S. Patil¹, A. Kadam¹,
J. Sonawane¹, S. Deshmukh¹, Gaurav R¹,
A. K. Singh¹, S. Lashkare², L. Somappa¹,
U. Ganguly¹**, ¹Indian Institute of Technology Bombay,
²Indian Institute of Technology Gandhinagar, India

15:40–16:00 – Coffee break

Friday, October 11, 14:00
Room 3

**Workshop “Semiconductor technologies in Romania -
current state and perspectives”**

Friday, October 11, 14:00

Room 2

**NANOSCIENCE & NANOENGINEERING III.
PHYSICAL PHENOMENA & APPLICATIONS**

Session: N&N3. Oral presentations

Chair: **D. Dragoman**, Univ. of Bucharest, Romania
V. S. Teodorescu, National Institute of Materials
Physics, Romania

14:00

Invited Paper

TRANSMISSION LINE ANALOGY IN
PLASMONICS, **D. Dragoman**, Univ. of Bucharest,
Romania

N&N3.1 SENSING IN THE SnO₂ PHONON GAP, **M. Mihaila**,
14:30 IMT Bucharest, Romania

N&N3.2 SWIR PHOTSENSING OF GeSn-HfO₂ FILMS
14:50 WITH SMALL Si AMOUNT, **C. Palade**¹, **A. Slav**¹,
I. Stavarache¹, **I. Dascalescu**¹, **O. Cojocaru**¹,
T. Stoica¹, **M. L. Ciurea**^{1,2}, **A.-M. Lepadatu**¹,
¹National Institute of Materials Physics, ²Academy of
Romanian Scientists, Romania

N&N3.3 GROWTH OF NANOSTRUCTURED LANTHANUM
15:10 DOPED ZnO BY ELECTROSPINNING
CALCINATION, **P. Pascariu**^{1,2}, **C. Romanitan**¹,
O. Brincoveanu¹, **C. Pachi**¹, **D. Manica**¹,
M. Manica¹, **A. Popescu**¹, **T. Sandu**¹, **O. Nedelcu**¹,
O. N. Ionescu¹, **M. P. Suche**^{1,3}, **E. Koudoumas**^{1,3},
¹IMT-Bucharest, ²"Petru Poni" Institute of
Macromolecular Chemistry, Romania, ³Center of
Materials Technology and Photonics, Hellenic
Mediterranean Univ., Greece

N&N3.4 RESISTIVE HUMIDITY SENSOR BASED ON
15:30 ONION-LIKE CARBON-PVA COMPOSITE
SENSING FILM, **B.-C. Serban**¹, **N. Dumbravescu**¹,
O. Buiu¹, **M. Bumbac**^{2,3}, **M. Brezeanu**⁴, **C. Pachi**¹,
C.-M. Nicolescu³, **V. Diaconescu**⁵, **C. Cobianu**¹, ¹IMT
Bucharest, ²Valahia Univ. of Targoviste, Romania,
³Institute of Multidisciplinary Research for Science
Technology, Valahia Univ. of Targoviste, ⁴National
Univ. of Science and Technology POLITEHNICA
Bucharest, Romania, ⁵Univ. of Medicine and Pharmacy
"Carol Davila", Romania

N&N3.5 AUTOMATED CHARACTERISATION OF PRINTED
15:50 ELECTRONICS UNDER ADJUSTABLE AMBIENT
CONDITIONS, **M. Ungerer¹, Z. Chen¹, T. P. Mach²,
K.-M. Reichert¹, U. Gengenbach¹, M. Lindmüller¹,
J. R. Binder², M. Reischl¹, L. Koker¹**, ¹Institute for
Automation and Applied Informatics, Karlsruhe
Institute of Technology, ²Institute for Applied Materials,
Karlsruhe Institute of Technology, Karlsruhe, Germany

N&N3.6 QUALITATIVE AND QUANTITATIVE
16:10 CHARACTERIZATION OF GRAPHENE BY USING
AFM BASED SMM, **M. Yasir**, Univ. of Oldenburg,
Germany

16:30-16:50 – Coffee break

Friday, October 11, 14:00
Room 3

**Workshop “Semiconductor technologies in Romania -
current state and perspectives”**

Friday, October 11, 16:00

Room 1

NANOSCIENCE & NANOPHOTONICS

Poster Session: P1

Chair: **A. Avram**, IMT Bucharest, Romania
M. Aldrigo, IMT Bucharest, Romania

- P1.1** STRUCTURAL AND MORPHOLOGICAL PROPERTIES AND WOUND HEALING EFFECTS OF NEW COLLAGEN – ARGININE DRESSING DESIGNED FOR BIOMEDICAL APPLICATIONS, **O. Brîncoveanu**^{1,2}, **I. C. Marinaş**², **D. M. Gaboreanu**², ¹IMT Bucharest, ²Research Institute of the Univ. of Bucharest – ICUB Bucharest, Romania
- P1.2** CONTROLLED FORMATION OF TiO₂ Thin Films By Reactive Magnetron Sputtering, **N. Vasile**, **M. Stoian**, **V. Țucureanu**, **G. Craciun**, **F. Comanescu**, **R. Gavrilă**, **I. Mihalache**, **S. Vulpe**, **M. A. Avram**, IMT Bucharest, Romania
- P1.3** SYNTHESIS AND PHOTOCATALYTIC ACTIVITY OF LANTHANUM-SUBSTITUTED Ni-ZN FERRITES FOR WATER TREATMENT APPLICATIONS, **M. Moustafa**¹, **R. M. Moussa**¹, **M. M. Salem**², ¹American Univ. in Cairo, Egypt, ²Beirut Arab Univ., Lebanon
- P1.4** INFLUENCE OF Ge CONCENTRATION AND DEPOSITION TEMPERATURE ON THE PHOTORESPONSE CHARACTERISTICS OF Ge:SiO₂ NANOCOMPOSITE THIN FILMS, **I. Stavarache**¹, **P. Prepelita**², **O. Cojocaru**¹, **M. L. Ciurea**^{1,3}, ¹National Institute of Materials Physics, ²National Institute for Laser, Plasma and Radiation Physics, ³Academy of Romanian Scientists, Romania
- P1.5** METAL ASSISTED CHEMICAL ETCHING FOR LARGE-AREA, HIGH-RESOLUTION NANOPHOTODECTOR, **H. Lim**¹, **J.-S. Lee**¹, **S. Hwang**², **S. Jeon**², **S.-H. Shin**², **J.-H. Jeong**², **B.-K. Ju**¹, ¹School of Electrical Engineering, Korea Univ., Republic of Korea, ²Korea Institute of Machinery and Materials, Republic of Korea

- P1.6** EXTENDED TOOL FOR NANOPARTICLES INCORPORATION EVALUATION FROM HYPERSPECTRAL IMAGES OF CULTURED CELLS, **I. N. Irimescu^{1,2}, M. Deaconu³, D. Berger¹, N. Tarba², C. C. Mustaciosu³, D. I. Savu³, R.-C. Popescu¹, E. Scarlat¹, M. Mihailescu¹, S. Ioniță¹, A. M. Pleava¹**, ¹National Univ. of Science and Technology POLITEHNICA Bucharest, ²Medist Imaging & Point of Care, ³“Horia Hulubei” National Institute for R&D in Physics and Nuclear Engineering
- P1.7** CARBON NANOTUBES (CNTs)-POLYPROPYLENE COMPOSITES FOR POTENTIAL ELECTROMAGNETIC SHIELDING APPLICATIONS, **D. Manica¹, C. Pachiu¹, C. Romanitan¹, O. N. Ionescu^{1,2}, O. T. Nedelcu¹, M. P. Sucheai^{1,3}**, ¹IMT Bucharest, ²Petroleum and Gas University of Ploiesti, Romania, ³Hellenic Mediterranean Univ., Greece
- P1.8** THERMALLY INDUCED POLYMORPHIC CHANGES IN POLY(VINYLDENE FLUORIDE) THIN LAYER INVESTIGATED USING MICRO-RAMAN SPECTROSCOPY, **M. Purica, V. Dediu, F. Comanescu**, IMT Bucharest, Romania
- P1.9** DIFFRACTIVE OPTICAL ELEMENT REALIZING A LOGARITHMIC – POLAR TRANSFORMATION, **G. Bulzan^{1,2}, R. Rebigan¹, M. Kusko¹, R. Tudor¹, C. Kusko¹**, ¹IMT Bucharest, ²Univ. of Bucharest, Romania
- P1.10** SIMULATION OF ANTIREFLECTIVE STRUCTURES IN TERAHERTZ REGION, **M. Kusko, C. Kusko, R. Tudor**, ¹IMT Bucharest, Romania
- P1.11** FLUORESCENCE ENHANCEMENT OF NEW AZULENE-TETRAZOLES USING RANDOM METALLIC NANOSTRUCTURES, **V. Anăstăsoaic¹, I. Mihalache¹, R. Tomescu¹, A. Dinescu¹, O. Brîncoveanu¹, G. Craciun¹, E.-M. Ungureanu², D. Cristea¹**, ¹IMT-Bucharest, ²National Univ. of Science and Technology POLITEHNICA Bucharest, Romania

**20:30 – CAS 2024 Banquet including
Best Paper Awards ceremony
(Hotel Sinaia Restaurant)**

Friday, October 11, 16:50

Room 1

**SENSORS, ADVANCED ELECTRONIC
DEVICES & CIRCUITS**

Poster Session: P2

Chair: **A. Bunea**, IMT Bucharest, Romania

A. Baracu, IMT Bucharest, Romania

- P2.1** ELECTRO-THERMALLY ACTUATED STRUCTURES EVALUATED FOR METASURFACE-BASED GAS SENSING SYSTEM, **F. C. Comanescu**, **M. Gologanu**, **D. Cristea**, **R. Tomescu**, IMT Bucharest, Romania
- P2.2** PRELIMINARY SIMULATIONS AND EXPERIMENTS OF ENZYMIC MOS BIOSENSORS, **C. Ravariu**¹, **E. Manea**², **C. Pârvulescu**², **V. Țucureanu**², **B. Appasani**³, **A. Srinivasulu**⁴, ¹National Univ. of Science and Technology POLITEHNICA Bucharest, ²IMT Bucharest, Romania, ³KIIT Univ., India, ⁴Mohan Babu Univ., India
- P2.3** VERTICAL GRAPHENE-BASED ELECTROCHEMICAL BIOSENSOR FOR DETECTION OF BLEOMYCIN, **C. Mărculescu**, **E. Chiriac**, **P. Preda**, **T. Burinaru**, **M. Avram**, IMT Bucharest, Romania
- P2.4** ZERO HYSTERESIS, HIGH SENSITIVITY AND FAST RESPONSE OF TWO RH SENSORS BASED ON CNO: POLYMER NANOCOMPOSITES, **N. Dumbravescu**¹, **C. Dumbravescu**², **B. Serban**¹, **O. Buiu**¹, ¹IMT Bucharest, ²IGSO-PCUBED Bucharest, Romania
- P2.5** PRESSURE MAPPING SYSTEM AT THE LEVEL OF THE SOLE OF THE FOOT, **F. Pistrițu**¹, **C. Parvulescu**¹, **M. Gheorghe**², **V. Dediu**¹, **O. N. Ionescu**¹, **P. Schiopu**³, **M. Suche**¹, ¹IMT-Bucharest, ²NANOM MEMS SRL, ³National Univ. of Science and Technology POLITEHNICA Bucharest, Romania

- P2.6** ELECTRICAL PARAMETERS OF BIOLOGICAL CELLS FROM DIELECTRIC SPECTRA – AN INVERSE MAPPING SOLVED BY MACHINE LEARNING, **T. Sandu, M. Gologanu, R. Popa**, IMT Bucharest, Romania
- P2.7** HARDWARE ACCELERATION FOR MACHINE LEARNING IN MEDICAL IMAGING: CASE STUDY ON COLORECTAL POLYP SEGMENTATION, **A. I. Dumachi, F. Negoită**, IMT Bucharest, Romania
- P2.8** EXTENDING THE FUNCTIONALITY OF THE UNIVERSAL LEARNING PLATFORM: THE THIRD HYBRID OPERATION CIRCUIT AND DEVICE CHARACTERIZATION BOARD, **A. M. Antonescu**, National Univ. of Science and Technology POLITEHNICA Bucharest, Romania
- P2.9** ADVANCED PROTECTION FUNCTIONS FOR SMART IGBT GATE DRIVERS ARE PAVING THE ROAD TO DAMAGE-FREE SYSTEMS, **S. Stamate^{1,2}, A.-G. Banu^{1,2}, I. Hurez^{1,2}, V. Bricicaru², V. Anghel², F. Drăghici^{1,2}**, ¹National Univ. of Science and Technology POLITEHNICA Bucharest, ²onsemi Romania
- P2.10** ULTRA SCALED NANOSHEET & NANOWIRE FETS PERFORMANCE EVALUATION WITH 3D MONTE CARLO SIMULATIONS FOR FUTURE TECHNOLOGY, **M. G. K. Alabdullah^{1,2}, N. Seoane³, A. J. Garcia-Loureiro³, K. Kalna¹**, ¹NanoDeCo Group, Swansea Univ., Swansea, UK, ²Northern Technical Univ., Iraq, ³CITIUS, Univ. of Santiago de Compostela, Spain
- P2.11** EXPLORING THE POTENTIAL OF A 1T-1M HFOX-BASED RESISTIVE SWITCHING DEVICE FOR ARTICULATING ARTIFICIAL NEURAL NETWORK HARDWARE, **S. Gupta, M. S. Yadav, V. K. Tavva, B. Rawat**, Indian Institute of Technology Ropar, India
- P2.12** ANALOG-MULTIPLY CURRENT-MODE CIRCUIT, **P.-A. Ștefănescu^{1,2}, M. J. Cristea², L.-A. Gheorghe^{2,3}, L. Dobrescu²**, ¹Microchip Technology, ²National Univ. of Science and Technology POLITEHNICA Bucharest, ³Infineon Technologies Romania

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