# IEEE 23<sup>rd</sup> International Symposium for Design and Technology in Electronic Packaging

October 26th - 29th, 2017, Constanța, România



The autumn convention of electronic packaging community

**Final Programme** 

**SIITME 2017** 

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EDITORS: Paul Svasta, Cristina Marghescu, Detlef Bonfert, Delia Lepadatu DTP: Bogdan Anton, Bogdan Mihăilescu Fraunhofer Research Institution for Microsystems and Solid State Technologies, EMFT, Munich - partner of SIITME 2017

Publisher:

# **SIITME 2017**

The autumn convention of electronic packaging community

International Symposium for Design and Technology in Electronic Packaging

Conference & Exhibition www.siitme.ro

23<sup>rd</sup> Edition, 26-29 October 2017

## Organized by:









Constanta Maritime University
Faculty of Electromechanics
Department of Electronics and Telecommunications
<a href="https://cmu-edu.eu/en/">https://cmu-edu.eu/en/</a>
University Politehnica of Bucharest

http://www.upb.ro

Faculty of Electronics, Telecommunications and Information Technology

http://www. electronica.pub.ro

Center for Technological Electronics and Interconnection
Techniques
http://www.cetti.ro

Association for Promoting Electronics Technology APTE http://www.apte.org.ro

## and supported by:

EPETRUN (Electronic Packaging Education Training and Research University Network)

## SIITME 2017- an IEEE-EPS Event where Electronics Industry comes together with Academia

Welcome to SIITME 2017, the scientific and technical event where the electronics industry meets academia, in order to discuss, disseminate and share achievements.

The current edition of SIITME follows the tendency, stimulated and promoted constantly by the organizers, to create a discussions forum for the electronics industry existing in Central and Eastern Europe. The participants, in a large number, more than 150 attendees, come to the conference and exhibition to share and to gain knowledge in one of the most dynamic field of our days, the electronics industry. Thanks to the strong support of IEEE- Electronic Packaging Society (EPS), Hu&Ro Joint Chapter, the event succeeds to gather professionals from industry and academia, directly involved in research, development and manufacture of electronic circuits, modules and systems.

A quick look to the participants' registration list shows us the variety of where they are coming from. The conference offers this year around 125 oral and poster papers and many industrial presentations, including 8 keynote speeches offered by well-known experts coming from academia and industry. Regarding the exhibition, it is important to mention that, in comparison with the previous editions, the number of exhibitors is close to double.

As usually, the poster sessions join together a large number of young researchers, including master and Ph.D. students. Thanks to the Poster Assessor Committee, composed by a large number of volunteers, professionals with high and solid experience from academia and industry, authors will have the opportunity, in a plenary oral session, to highlight their scientific work and, after that, during individual discussions in front of their posters, to offer more details to evaluation teams. Maybe it is necessary and good to notice that the posters are posted during the whole conference period, offering to participants the possibility for a better and more efficient visibility of their research activity. The face-to-face, free and open discussions, without constrains or pressures, similar to a brainstorming sessions, link people and could lead to solid partnerships, to new ideas, and eventually to identification, for current research works, strengths, weaknesses, opportunities and dangers.

As General Conference Chair, I have the pleasure to express my gratitude and to address many thanks to the conference organizers for this outstanding SIITME edition.

Last, but not least, I wish to all participants of SIITME 2017 a pleasant stay, fruitful discussions, new partnerships for moving on this fascinating domain of electronics, and professional achievements!



University Politehnica of Bucharest, Romania, Association for Promoting Electronics Technology SIITME General Chair



## **Welcome to SIITME 2017**



## Dear participants and guests,

It is my deepest honor to welcome you to the 23rd International Symposium for Design and Technology in Electronic Packaging (SIITME). Constanta Maritime University is extremely proud to host this event, especially since this is the first time it is held in Dobrogea region.

Constanta, the ancient citadel of Tomis, is a landmark between the Danube and the Black Sea. Today, the city is a cosmopolite and lively center, where old and new, traditional and modern coexist in perfect harmony. Constanta is a Black Sea port city and owes much of its steady growth to the development of port activities.

Constanta Maritime University is a preeminent higher education institution in the maritime field. Its mission is to train highly skilled professionals who possess the necessary competences to face the challenges of the increasingly competitive global market. Our graduates are trained to become capable deck and engine officers, as well as skilled engineers in the field of mechanics, electrotechnics and telecommunications. The university maintains a close cooperation with the industry representatives, with a view to ensure a better market-oriented education for its students.

I sincerely hope that this year's Symposium will successfully bring together researchers, academics, technology providers and industry stakeholders, who will explore opportunities and sustainable solutions for today's challenges in the field of electronics.

On behalf of the local organizing committee, I would like to wish all participants a fruitful and pleasant stay in Constanta.

Assoc. Prof. Mihaela Hnatiuc Ph.D SIITME 2017 Conference Chair Constanta Maritime University, Romania

## More than a Conference

There are top-notch conferences due to the level of papers presented. There are top-notch conferences due to the diversity of specialists who gather around the latest topics. There are top-notch conferences due to their organisation and high number of editions. SIITME has all these attributes to be called a top-notch event. But SIITME is more than a conference. It is an event that attracts young people. It is an event that promotes the topic of electronic packaging our entire region is an event where research and academia can meet the industry. It is an event where professional relations become friendship.

All these considered, I recommend everyone to go for the SIITME experience.

SIITME Conference & Exhibition General Academic Chair: Professor Dan PITICĂ Ph.D.
Technical University of Cluj-Napoca, Romania



## A message from the Publication Chair

As the 23<sup>rd</sup> SIITME 2017 edition is about to start, there is a lot to look forward to. Before doing this, however, I would like to express my gratitude towards our contributors, our reviewers and our Steering Committee for their support of the Conference and its mission: to provide an international forum for dissemination of information and scientific results related to education, research and development, in the field of Electronic Packaging.

What is there to look forward to at SIITME 2017? Most importantly, the huge number of participants: authors and contributors for the 115 papers accepted and 8 high profile Keynote Speakers. Then, this year's electronics industry involvement that will tackle EMS, reliability and PCB supply chain challenges in the Industrial Workshop (26<sup>th</sup> of October), besides the traditional exhibition space for major key-players in electronics.

In addition, the Publication and Scientific Committees main focus will be to publish the highest quality research, to award top researchers and to provide author's recognition and visibility by indexing papers in IEEE Xplore Digital Library and Thomson-Reuters ISI-CPCI.

Assoc. Prof. Gabriel Chindris, PhD.

Cluj-Napoca, October 2017



## Message from Ciprian Ionescu

Chair of the IEEE CPMT Hungary & Romania Joint Chapter

I am glad to have the possibility this year to address a message to SIITME participants on behalf of IEEE CPMT Hungary and Romania Joint Chapter.

This year the society IEEE CPMT will be redefined as IEEE EPS (Electronic Packaging Society). This fact I think sustains the idea that the activities and topics presented during many years in SIITME Conference, where Electronic Packaging was promoted, are still very actual.

This SIITME edition will offer a good opportunity to promote even more the core values of IEEE. There will be a large number of attendees, valuable key note speakers and a large number of poster presentations. Being for the first time in this ancient region of Romania, Dobrogea, SIITME could act as a vector to expose the problematic of electronics in this region, where electronics industry is not so present. Beside the already classical Industrial Session I will underline the Industrial Workshop that was suggested by Industry. Te aim is to make aware the participants from companies that new technologies are already at the door and that networking, ensured among other organizations by SIITME, can be very useful for their further activity.

Technical achievements can only be implemented by a well trained human resource. I will mention here that other activity supported by our IEEE chapter as TIE (Interconnection Techniques in Electronics) and TIE+ have encouraged technical education in Electronic Packaging and have ensured a pipeline of students to continue their hobby into profession. The Human Resources Workshop that is included in SIITME program will be a good opportunity to evaluate the needs and the level of competences for human resource in electronics. Being in an Academic environment, the messages from Industry will help us to adapt the curricula and not only to what industry needs.

At the end I will emphasize that IEEE CPMT Society (now EPS), in particular through the HU-RO Joint Chapter has supported and was a sponsor of the SIITME Conference, every year since 2009. This has brought a large benefit to the visibility of both Conference and authors, most of the papers being selected to be published through the On-line Platform IEEE Explore. On behalf of the Chapter that I represent I hope that this year 23<sup>rd</sup> Edition of SIITME will be an important step further in promoting the IEEE values, as the IEEE logo underlines: "Advancing Technology for Humanity" and that the event will be a real success.

Prof. Ciprian Ionescu, Ph.D. Bucharest, October 2017

## Thursday, October 26

13:30 – 19:00	Registration (Registration desk, Hotel Lobby)
13:30 – 17:00	Industrial Workshop "Advanced Interconnection and Disruptive Technologies, Debate for the Future Sustainable Electronics Packaging" (OVIDIU Room)
19:30 – 21:00	Welcome reception (Hotel IBIS restaurant)
21:00 – 21:45	<b>Steering Committee Meeting</b> (Steering Committee Room), Chaired by Paul Svasta, University Politehnica of Bucharest, Romania, Association for Promoting Electronics Technology
21:45 – 22:00	<b>Evaluators Meeting</b> (Steering Committee Room - TRAIAN) Chaired by Heinz Wohlrabe, Dresden University of Technology, Germany
22:00 – 23:00	IEEE – CPMT Hu & Ro Joint Chapter Meeting (Steering Committee Room – TRAIAN), Chaired by Ciprian Ionescu, University Politehnica of Bucharest, Romania

## Friday, October 27

07:00 - 08:00	Breakfast (Hotel IBIS restaurant)
08:00 - 12:00	Registration (Registration desk, Hotel Lobby)
08:00 - 08:15	Opening ceremony, Welcome words (PRESTIGE Room)
08:15 - 10:15	Plenary Oral Session 1 (PRESTIGE Room)
10:15 – 10:30	Coffee Break
10:30 - 11:30	<b>Technical Exhibition Opening – Industrial Session (PRESTIGE</b> Room)
11:30 - 13:30	Plenary Oral Session 2 (PRESTIGE Room)
13:30 – 14:30	Lunch
14:30 – 16:15	Poster Session - 1a – oral presentation (PRESTIGE Room) (parallel session) - 1b – oral presentation (OVIDIU Room) - Discussions in front of the poster (PRESTIGE Room)
16:15 – 16:45	Coffee Break
16:45 – 18:15	Plenary Oral Session 3 (PRESTIGE Room)
18:15 – 20:00	Visit Simulation Labs at Maritime University of Constanta
20:00 – 22:00	Wine taste Session: The culture of wine, Oprisor Wineyard, and Dinner (Zorile restaurant)

## Program at a glance

## Saturday: October 28

09:00 - 10:00

10:00-11:00

07:00 - 08:00	Breakfast (Hotel IBIS restaurant)	
08:00 - 10:00	Registration (Registration desk, Hotel Lobby)	
08:00 - 10:00	Plenary Oral Session 4 (PRESTIGE Room)	
10: 00 – 10:30	Coffee Break	
10:30 - 11:30	Industrial Session (PRESTIGE Room)	
11:30 – 13:15	Poster Session 2 (PRESTIGE Room)	
13:15 – 14:00	Lunch	
14:00 - 16:00	Poster Session 3 (PRESTIGE Room)	
16:00 – 17:30	Plenary Oral Session 5 (PRESTIGE Room)	
17:30 – 19:30	Cultural Program	
19:00 – 19:30	<b>Steering Committee Meeting (</b> Steering Committee Room – <b>TRAIAN)</b>	
19:30 – 23:00	Conference Dinner and Awarding session (Hotel IBIS restaurant)	
Sunday: October 29		
07:30 - 09:00	Breakfast (Hotel IBIS restaurant)	

Farewell coffee, End of Symposium

Closing ceremony, looking forward to SIITME 2018 (PRESTIGE Room)

## INDUSTRIAL WORKSHOP

## "Advanced Interconnection and Disruptive Technologies, Debate for the Future Sustainable Electronics Packaging" Thursday, 26 October 2017

	Thursday, 26 October 2017	
13:30 – 14:00	Registration	
Session I – Moderators: Cosmin MOISA, Continental Automotive Romania Stefan TECHAU, ASM Assembly Systems GmbH & Co. KG		
14:00 – 14:15	Welcome, reasoning and stakeholders introduction Cosmin MOISA, Continental Automotive Romania Paul SVASTA, University Politehnica of Bucharest, Romania, Association for Promoting Electronics Technology	
14:15 – 14:30	EMS status quo Tiberiu SIMIONAS, Continental Automotive Romania László RÉDEY, Deery Brook SRL – Alpha Assembly Solution	
14:30 – 14:35	Q&A	
14:35 – 14:50	Reliability challenge of the electronic products Frédéric KRATZ, National Institutes of Applied Sciences INSA Ioan PLOTOG, University Politehnica of Bucharest, Romania	
14:50 – 14:55	Q&A	
14:55 – 15:10	Front end assembly capability - state of the art Ferenc CSIZMAZIA, ASM Assembly Systems Austria GmbH	
15:10 – 15:15	Q&A	
15:15 – 15:30	Coffee break	
Session II – Moderators: Joseph FJELSTAD, Verdant Electronics, USA Paul SVASTA, University Politehnica of Bucharest, Romania, Association for Promoting Electronics Technology		
=		
15:30 – 15:45	PCB suppliers - actual challenges Fabio Puccia MODICA, Tecnometal / Martino TADDEI, GESTLABS Mihai FEDOREAC - Continental Automotive Romania	
15:45 – 15:50	Q&A	
15:50 – 16:10	OCCAM - Introduction and trials Ciprian IONESCU, Gaudentiu VARZARU, Mihai BRANZEI University Politehnica of Bucharest, Romania	
16:10 – 16:25	Q&A	
16:25 – 16:35	Back end assembly - further steps Tiberiu SIMIONAS, Continental Automotive Romania Marian ONICA, Continental Automotive Romania	
16:35 – 16:45	Supporting open innovation to raise entrepreneurship and public private partnership - DA-SPACE project vision  Bogdan MIHĂILESCU, Association for Promoting Electronics Technology	
16:45 – 16:50	Next steps and further workshop potential Cosmin MOISA, Continental Automotive Romania	

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Many thanks to the reviewers for their outstanding effort to assure a high quality of abstracts of conference papers.

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Technology, Germany



Prof. Dr.-Ing. habil. Dr. H. C. Mult. Klaus-Jürgen Wolter Technische Universität Dresden

e-mail: wolter@avt.et.tu-dresden.de

Presentation:

"Automotive Electronics Packaging Trends"

Prof. Klaus Wolter's research interests have embraced many aspects of microelectronics packaging, including substrate technologies, assembly technologies, photonic packaging, MEMS, joining technologies, reliability of electronic packages, and non-destructive test methods.

He is well known as the co-editor and co-author of six textbooks, co-editor of three book series with a total of 39 books, author and co-author of more than 200 papers.

He is a senior member of IEEE-CPMT.

Prof. Wolter was the Director of the Electronic Packaging Lab at TU Dresden from 2003 to 2014. From March 2015 to March 2017, he was a visiting professor at the 3D Systems Packaging Research Center of Georgia Tech Atlanta where he researched on system-integration for advanced automotive electronics. Currently he is a senior professor at TU Dresden.



Dipl. Ing. Stefan Techau

ASM Assembly Systems GmbH & Co. KG

Tel.: +49 173 6780 930

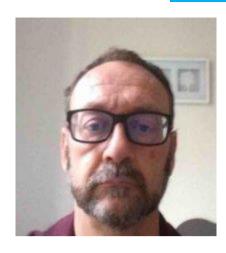
e-mail: stefan.techau@asmpt.com

## Presentation:

"The necessary technological environment for competitive manufacturing"

Stefan Techau started in the industry with vocational training in electronics in 1985 at AEG, then continued his journey with a stop at the FH Kiel to become graduate engineer in electronics. He has been working in the SMT industry for over twenty years now, having joined the company DEK in 1996.

Stefan Techau has held various positions in the DEK Sales organization and has extensive experience with the German as well as Central-Eastern-European markets. Today, Stefan Techau leads the ASM CRM team of the entire EMEA region, where he worked and succeeded to unite seven regional organizations to become an inspired team after SIPLACE and DEK became one joined company in 2014. A great team embedded within a powerful company that delivers innovative solutions to its customers he names as his key driver.



Professor Frédéric KRATZ, Ph.D.

Director of Research Development and **Promotion Department** 

National Institutes of Applied Sciences INSA Centre Val de Loire

Phone: +33(0)248484027, Fax: +33(0)248484040

e-mail: frederic.kratz@insa-cvl.fr

Presentation:

"Aging modeling and state-of-health determination for lithium-ion batteries used in embedded applications"

He is the author of more than one hundred and thirty scientific articles and has contributed to the drafting of a dozen chapters of books. He was Head of the team Automatic Control of Laboratory of Vision and Robotic at University of Orléans.

Now he is Director of Research Development and Promotion Department and Head of the team project RAMS and Diagnosis of Systems of PRISME Institute.

## **Research Interests:**

- Switched systems
- Nonlinear systems
- Observability, state estimation and control
- Reliability Engineering; System Safety

## **Funded projects**

- "Diagnosis of hybrid systems", CNRS GdR MACS & RTP 20.
- "Diagnosis of common rail", ERDF, ESF, French ministry fund, Regional council Loire Valley fund and Delphi Diesel Systems.
- "Diagnosis of the radiotelescope of Nancay", ERDF, ESF, French ministry fund, Regional council Loire Valley fund, General council of Cher department and CNRS.
- "Biovolume", HICEF (Hitachi Computer Products Europe France) division Smart Sensor.
- "Capthom", Cluster S2E2 (Sciences & Systems of Electrical Energy).
- Fost", Intelligent Systems and Robotic Competitiveness Cluster: VIAMECA (FUI Project)
- "CIA IoT", Centre-Loire Valley project



Keynote speaker:

Joseph FJELSTAD,
CEO Founder
Verdant Electronics
Seattle, Washington, USA
e-mail: joe@verdantelectronics.com

Presentation:

"Rigid Flex Circuits: A Technological Overview"

Joseph (Joe) Fjelstad, founder and CEO of Verdant Electronics, is 45-year veteran of the electronics industry and internationally known expert in the field of electronic interconnection technology. He is a serial entrepreneur and certain of the concepts found in his 175 plus US patents are also found in nearly every electronic device manufactured today. Joe is also an author or coauthor of several books on electronics manufacturing and IC packaging technology including: The Printed Circuit Handbook, 7th Edition (2016) and Flexible Circuit Technology, 4h Edition (2012), both of which are the most widely read references on the topics and Electronic Packaging and Interconnection Handbook, 4th Edition and Chip Scale Packaging for Modern Electronics. He has given lectures at numerous universities and researcher centers including CERN and NASA-JPL and has keynoted several electronics conferences.



Prof. Gheorghe Brezeanu, Ph.D.
Professor at Faculty of Electronics,
Telecommunications and Information Technology
University Politehnica of Bucharest

e-mail: gheorghe.brezeanu@dce.pub.ro

Presentation:
"Silicon Carbide Sensors for Automotive
Applications"

Gheoghe Brezeanu is Professor at Electronics and Telecommunications Faculty, University Politehnica Bucharest; since1994- PhD supervisor in Electronics and Telecommunications Engineering with 20 PhD programs finalized and Director of Doctoral School of Electronics, Telecommunications and IT- since 2012

His area of competence is in: Nano-electronics, Microelectronics; Measurement and data acquisition systems for power devices; Ohmic contact measuring system; Pressure and temperature sensors, biosensors; DC-DC Converter for LED Biasing; Silicon carbide and diamond devices manufactured for the first time in Romania; Wide band semiconductor device and circuits models; Oxide edge termination profiles for power devices; Analogue integrated circuits.

He have experience in research projects: 6 international projects (director) and 22 national projects/grants (director); Director of the Romanian MATNANTECH programme – Chapter 7 – Micro, nanoelectronics andoptoelectronics – 2001-2008; Project reviewer and monitor within the frame of the following Romanian programmes: ORIZONT, MATNANTECH, RELANSIN, CNCSIS, CEEX, POSDRU – Since 1996; Member (2005-2008) and Deputy Head (2008-2010) of the Engineering Sciences committee within the National Council for High Education (CNCSIS); Member of the Electronics and Telecommunications committee board within the National Council for Academic Titles, Diplomas and Certificates Validation (CNATDCU) – Since 2011; Vice-chairman of the IEEE International Semiconductor Conference (CAS) – Since 2005; Technical Program Committee member of the International Symposium on Signal, Circuits and Systems – Since 2009, European Solid State Devices Research Conference (ESSDERC) – Since 2013 and of European Conference on Silicon Carbide and Related Materials (ECSCRM) – Since 2016.

Professor Brezeanu is the author of more than 250 papers (133 ISI), 5 patents, 19 books; H index: 12; over 700 citations.



**Keynote speaker:** 

Jose Sartori
Sales Director
OSRAM Opto Semiconductors

e-mail: JoseGuilherme.Sartori@osram-os.com

Presentation:
"Trending and Future Applications in OptoSemiconductors"

Jose Sartori is a Sales Director at OSRAM Opto Semiconductors. With 24 years of Lighting Industry and 16 years of International experiences, he has being leading Sales Teams trough the LED conversion into Lighting.

He has being able to follow the LED "Era" since its first conversion into white light up to the latest achievements, where an LED efficiency could be higher than any other light source, and still allowing miniaturization, color control, and many other advantages.

In his session, he will be able to talk about the new trends on Lighting through Opto Semiconductors and where this would lead us; and how Lighting (Visible or not) would influence and connect us in the near Future!



Professor Etienne SICARD, Ph.D. **University Professor** INSA Toulouse, Dept of Electrical & Computer Engineering (GEI), University of Toulouse, France

Web site: www.etienne-sicard.fr

Mobile: +33 623 15 35 74

e-mail: etienne.sicard@insa-toulouse.fr

## Presentation:

" EMC-Aware System Design - A focus on Integrated Circuits "

Etienne Sicard received a PhD in Electrical Engineering from the University Paul Sabatier of Toulouse, France. He is currently a professor at INSA of Toulouse, France, Department of Electrical and Computer Engineering. His research interest concern electromagnetic compatibility (EMC) of integrated circuits (IC), in partnership with industry.

Since 2000, he has co-advised more than 15 PhD students in this field. He was elected for 2006-2007 distinguished lecturer of the IEEE EMC society, and has been chairman of several editions of EMC Compo international workshop. He has been an EMC consultant for major industries involved in 4 & 5G mobile network and mobile development.

He is the author of books and educational software in the field of IC design (Microwind), EMC of ICs (IC-EMC) and signal processing. He is also co-author of more than 200 technical and research papers.



## Keynote speaker:

Dr. Ing. Radu Sporea
Lecturer, Semiconductor Devices
Advanced Technology Institute,
University of Surrey, Guildford GU2 7XH, UK

e-mail: r.a.sporea@surrey.ac.uk

**Presentation:** 

"Constructive use of metal-semiconductor contact effects in thin-film transistors "

Dr Radu Sporea is a Lecturer in Power Electronics and Semiconductor Devices at the Advanced Technology Institute (ATI), Department of Electrical and Electronic Engineering, University of Surrey. His PhD research in Large Area Electronics (University of Surrey – 2011) focused on new types of electronic devices fabricated using polysilicon, then the state-of-the-art material system for display screens. Since, his research focused on the practical aspects of large-area electronics, specifically on using metal-semiconductor contact effects constructively for increased amplification and power efficiency. In 2010 he was awarded the EPSRC PhD+ (now Postdoctoral Prize) and, in 2011, the Royal Academy of Engineering Research Fellowship, both held at the University of Surrey. In 2014, Dr Sporea was identified as one of the EPSRC Rising Stars in Engineering.

Dr Sporea holds one patent on circuit energy efficiency, is the author of over 30 papers published in prestigious journals, and has given over 30 presentations, many invited, at the top international conferences. Dr Sporea is the Secretary of the UK & Ireland chapter of the Society for Information Display, and serves on the technical committees of several of the best conferences in the area (ESSDERC, ITC, CADTFT), and part of the IEEE Flexible and Printed Electronics Working Group.

On the recently-awarded £950k EPSRC "Next Generation Paper" Grant, Dr Sporea will be leading the printed electronic design and system integration. An augmented travel book prototype will be specified for pilot-scale production at VTT Finland. Printed sensors will track user gestures and handling of the book, and will allow the book to act as a "remote" control for interfacing with online and multimedia content without complicating the conventional book reading experience.

He is an experienced science communicator with activities in the UK and abroad, having led or contributed to numerous engagement and education activities at science festivals (Cheltenham Sci. Fest.; Pint of Sicence; BrightClub; British Science Association Award and Lecure for Engineering – 2015), on site (British Council Café Scientifique Hong Kong), on radio (Award-winning contributions to The Academic Minute, USA, 2015), television (BBC Shock and Awe: The Story of Electricity), and online. In 2016, he won the SATRO STEMX Public Sector Organisation Working with Schools Award for hosting Sixth Form summer research placements. He has received the 2017 Faculty Early Career Teaching Excellence Award at Surrey.

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## Friday, October 27

## 08:00 – 08:15 Opening ceremony, Welcome words

(PRESTIGE Room)

Zsolt ILLYEFALVI-VITÉZ, Budapest University of Technology and Economics, Hungary Mihaela HNATIUC, Maritime University of Constanța, Romania Paul SVASTA, University Politehnica of Bucharest, Association for Promoting Electronics Technology, Romania

## Friday, October 27

## 08:15 - 10:15 Plenary Oral Session 1

(PRESTIGE Room)

**Session Chair:** Pavel MACH, Technical University of Prague, Czech Republic **Session Co-Chair:** Heinz WOHLRABE, Technical University of Dresden, Germany

## 08:15 - KN1 - Automotive Electronics Packaging Trends

Prof. Dr.-Ing. habil. Dr. H. C. Mult. Klaus-Jürgen Wolter, Technical University of Dresden, Germany

## 08:50 - KN2 - The necessary technological environment for competitive manufacturing

Dipl. Ing. Stefan Techau, ASM Assembly Systems GmbH & Co. KG, Germany

## 09:25 - O1 - Investigating the Activation Energy of Intermetallic Layer Growth in SAC305 and Innolot Alloys

Oliver Krammer, Department of Electronics Technology, Budapest University of Technology and Economics, Hungary

## 09:50 - O2 - Flicker Distortion Power Factor Analysis in Lighting LED's

Ciprian Ionescu, University Politehnica of Bucharest, Romania, Center for Technological Electronics and Interconnection Techniques; Mihai Dima\*, Department of Computational Physics and IT - Institute for Nuclear Physics and Engineering, Bucharest, Romania; Detlef Bonfert, Fraunhofer Institution for Modular Solid State Technologies EMFT Munich, Germany

## Friday, October 27

## 10:30 – 11:30 Industrial Session

(PRESTIGE Room)

Session Chair: Gabriel CHINDRIŞ, Technical University of Cluj-Napoca, Romania Session Co-Chair: Cosmin MOISA, Continental Automotive Romania

ASM Assembly Systems, Germany Digital Telecomms Srl, Romania ES A.T.E. Solution, Italia GESTLABS, Italia
TECNOMETAL, Italia &
Deery Brook, Romania

## Friday, October 27

## 11:30 – 13:30 Plenary Oral Session 2 (PRESTIGE Room)

Session Chair: Klaus-Jürgen WOLTER, Technical University of Dresden, Germany

Session Co-Chair: Marian PETRESCU, Continental Automotive Romania

## 11:30 – KN3 - Aging modeling and state-of-health determination for lithium-ion batteries used in embedded applications

Prof. Frédéric Kratz, Ph.D., National Institutes of Applied Sciences INSA Centre Val de Loire, France

## 12:05 - KN4 - Rigid Flex Circuits: A Technological Overview

Joseph Fjelstad, Verdant Electronics, Seattle, Washington, USA

# 12:40 – O3 - Selective sensitivity of contact MEMS position sensors with sidewall piezoresistors Vladimir Stavrov\*; Galina Stavreva; Emil Tomerov, AMG Technology Ltd; Assen Shulev, Institute of Mechanics – Bulgarian Academy of Scienses, Bulgaria; Yuri Tsenkov, Electroninvest Ltd; Dimiter Chakarov, Institute of Mechanics – Bulgarian Academy of Scienses, Bulgaria

## 13:05 – O4 - Investigation of PDMS-gold nanoparticle composite films for plasmonic sensors

Attila Bonyár\*; Zsanett Izsold, Department of Electronics Technology, Budapest University of Technology and Economics, Hungary

## Friday, October 27

## 16:45 – 18:15 Plenary Oral Session 3 (PRESTIGE Room)

Session Chair: Mihaela HNATIUC, Maritime University of Constanța, Romania

Session Co-Chair: Frédéric KRATZ, National Institutes of Applied Sciences INSA Centre Val de Loire,

France

## 16:45 - KN5 - Silicon Carbide Sensors for Automotive Applications

Prof. Gheorghe Brezeanu, Ph.D., Faculty of Electronics, Telecommunications and Information Technology, University Politehnica of Bucharest, Romania

## 17:20 - O5 - Void Separation Efficiency of Vacuum VPS technology on FR4 and LTCC Substrates

Balázs Illés, Department of Electronics Technology, Budapest University of Technology and Economics, Hungary; Agata Skwarek\*, Department of Microelectronics, Institute of Electron Technology, Krakow, Poland; Attila Géczy, Department of Electronics Technology, Budapest University of Technology and Economics, Hungary; Dorota Szwagierczak, Department of Microelectronics, Institute of Electron Technology, Krakow; Krzysztof Witek, Poland

## 17:45 - O6 - An RLS Algorithm for the Identification of Bilinear Forms

Camelia Elisei-Iliescu; Constantin Paleologu\* Telecommunications Department, University Politehnica of Bucharest, Romania; Jacob Benesty, INRS-EMT, University of Quebec, Canada; Robert A Dobre; Silviu Ciochina, Telecommunications Department, University Politehnica of Bucharest. Romania

## Saturday, October 28

## 08:00 – 10:00 Plenary Oral Session 4 (PRESTIGE Room)

Session Chair: Ismail TAVMAN, Dokuz Eylul University, Buca – Izmir, Turkey

Session Co-Chair: Vlad CEHAN, Gheorghe Asachi Technical University of Iaşi, Romania

## 08:00 - KN6 - Trending and Future Applications in Opto-Semiconductors

Jose Sartori, OSRAM Opto Semiconductors, Germany

## 08:35 - KN7 - EMC-Aware System Design - A focus on Integrated Circuits

Prof. Etienne SICARD, Ph.D., INSA Toulouse, Dept of Electrical & Computer Engineering (GEI), University of Toulouse, France

## 09:10 – 07 - Current consumption monitoring and analysis system for energy management improvement in an industrial complex

Laurentiu Mihai Ionescu\*; Alin Gheorghita Mazare, University of Pitesti, Romania; A.I. Lita, University Politehnica of Bucharest, Romania; D. Visan; G. Serban; N. Belu, University of Pitesti, Romania; A. Sanmarghitan, AM Project Design & Consulting; T. Goeller, MINcom Smart Solutions GmbH, Rosenheim, Germany; E.M. Iuzic, Network Connection and Modernization Division, Delgaz Grid, Suceava, Romania

## 09:35-08 - Improved Binary HOG Algorithm and Possible Applications in Car Detection

Mariana-Eugenia Ilas, University Politehnica of Bucharest, Romania

## Saturday, October 28

## 10:30 – 11:30 Industrial Session (PRESTIGE Room)

Session Chair: Ioan PLOTOG, University Politehnica of Bucharest, Romania

Session Co-Chair: Bogdan MIHĂILESCU, University Politehnica of Bucharest, Romania

ARC Braşov, Romania
Caelynx Europe, Romania
Center of Particle Control, Hungary

Comtest, Romania Marquardt Sibiu, Romania

## Saturday, October 28

## 16:00 – 17:30 - Plenary Oral Session 5 (PRESTIGE Room)

Session Chair: Ioan LIȚĂ, University of Pitești, Romania

Session Co-Chair: Balázs ILLÉS, Budapest University of Technology and Economics, Hungary

**16:00 – KN8 - Constructive use of metal-semiconductor contact effects in thin-film transistors** Radu Sporea, Ph.D., Advanced Technology Institute, University of Surrey, United Kingdom

## 16:35 – O9 - FEM Modelling of Split Ring Resonator Based Metamaterials for UWB Notch Filter Applications

Viorel Ionescu\*, Department of Physics and Electronics, Ovidius University, Constanta, Romania; Mihaela E. Hnatiuc, Department of Electronic and Telecommunication, Maritime University, Constanta, Romania

## 17:00 – O10 - Indoor positioning WLAN based fingerprinting as supervised machine learning problem

Dumitru Iulian Nastac\*; Alexandru Florentin Iftimie; Octavian Arsene; Virgil Ilian, University Politehnica of Bucharest, Romania; Bogdan Cramariuc, IT Center for Science and Technology, Romania

#### **Posters Assessor Committee:**

## General Poster Session Chair: Heinz Wohlrabe, TU Dresden

Mihaela ANDREI, Dunarea de Jos University of Galati, Romania

Atilla BONYÁR, Budapest University of Technology and Economics, Hungary

Detlef BONFERT, Fraunhofer EMFT, Munich, Germany

Radu BOZOMITU, Gheorghe Asachi Technical University of Iaşi, Romania

Mihai BRANZEI, University Politehnica of Bucharest, Romania

Mihai BURGHEAUA, Continental Automotive Romania, Iasi

Iulian BUSU, Lumped Elements srl, Romania

Vlad CEHAN, Gheorghe Asachi Technical University of Iaşi, Romania

Gabriel CHINDRIŞ, Technical University of Cluj-Napoca, Romania

Norocel CODREANU, University Politehnica of Bucharest, Romania

Rodica CONSTANTINESCU, University Politehnica of Bucharest, Romania

Mihai CENUSA, Continental Automotive Romania, Iaşi

Costinel COSTACHE, DIGITAL TELECOMMS srl, Romania

Andrei DRUMEA, University Politehnica of Bucharest, Romania

Lucian DUMITRU, Comtest srl, Romania

Joseph FJELSTAND, Verdant Electronics, Seattle, Washington, USA

Viorel Lucian GLIGOR, OSRAM Romania

Cristian GORDAN, Autoliv Automotive SRL

Fabian HENZE, Miele Tehnica srl Brasov, Romania

Mihaela HNATIUC, Maritime University of Constanța, Romania

Balázs ILLÉS, Budapest University of Technology and Economics, Hungary

Ciprian IONESCU, University Politehnica of Bucharest, Romania

Laurentiu IONESCU, University of Pitesti, Romania

Şerban Radu IONESCU, Radio Consult srl, Romania

Zsolt ILLYEFALVI-VITÉZ, Budapest University of Technology and Economics, Hungary

Olivér KRAMMER, Budapest University of Technology and Economics, Hungary Frédéric

KRATZ, National Institutes of Applied Sciences INSA Centre Val de Loire, France Emil

LAZARCIUC, Continental Automotive Romania, Timisoara

Ioan LITĂ, University of Pitești, Romania

Pavel MACH, Technical University of Prague, Czech Republic

Alin MAZĂRE, University of Pitești, Romania

Bogdan MĂRGINEAN Miele Tehnica srl Brasov, Romania

Bogdan MIHĂILESCU, University Politehnica of Bucharest, Romania

Cosmin MOISA, Continental Automotive Romania, Timisoara

Florin MORARU, S.C. Marguardt Schaltsysteme S.C.S., Romania

Iulian Dumitru NĂSTAC, University Politehnica of Bucharest, Romania

Viorel NICOLAU, Dunarea de Jos University of Galati, Romania

Marian ONICA, Continental Automotive Romania, Iași

Cristina OPREA, Tensor srl, Romania

Lucian Andrei PERISOARA, University Politehnica of Bucharest, Romania

Luigi PESA, ES A.T.E. Solution, Italia

Marian PETRESCU, Continental Automotive Romania, Iasi

Etienne SICARD, University of Toulouse, France

Agata SKWAREK, Institute of Electron Technology, Krakow, Poland

George SUCIU, BEIA Consult International srl, Romania

Roland SZABO, Continental Automotive Romania, Timișoara

Ismail TAVMAN, Dokuz Eylul University, Buca – Izmir, Turkey

Klaus WOLTER, Technical University of Dresden, Germany

## Friday, October 27

## Presenter: Stick- up poster after registration!

## 14:30 – 16:15 **Poster Session 1a & 1b**

(parallel session - oral presentation)

NOTE: Each author must deliver a maximum 3 minutes slide show presentation of her/his work.

## Poster Session 1a (PRESTIGE Room)

Dissemination session of MECA (MicroElectronics Cloud Alliance) project, www.meca-project.eu, Knowledge Alliance 562206-EPP-1-2015-1-BG-EPPKA2-KA; session supported by MECA

Session Chair: Etienne SICARD, INSA Toulouse, Dept of Electrical & Computer Engineering (GEI),

University of Toulouse, France

Session Co-Chair: Norocel CODREANU, University Politehnica of Bucharest, Romania

## P1a.1 Project MECA: Training Course in Microsystems with Piezoresistive Feedback

Vladimir Stavrov, AMG Technology Ltd; Galina Stavreva, AMG Technology Ltd; Emil Tomerov, AMG Technology Ltd, Bulgaria; Elitza Gieva, TU-Sofia; Rossen Radonov, TU-Sofia; Slavka Tzanova\*, TU Sofia, Bulgaria

## P1a.2 Technology e-Learning Environment for the Hybrid Cloud

Teodor Iliev\*, University of Ruse, Bulgaria; Ivaylo Stoyanov, University of Ruse, Bulgaria; Strahil Sokolov, University of Telecommunications and Post, Sofia, Bulgaria; Asen Zahariev, University of Telecommunications and Post, Sofia, Bulgaria; Stefan Vlaev, University of Telecommunications and Post, Sofia, Bulgaria

## P1a.3 OERs and MOOCs in the UNED: Strengthening MOOCs with a job-oriented philosophy Rosario Gil Ortego\*; Manuel Castro Gil, UNED; Francisco Javier Leal Juárez; Rafael Jiménez Castañeda, INOMA, Spain

## P1a.4 Investigating the effect of large SMD components on heating during vapour phase soldering

Attila Géczy\*; Balázs Illés, Budapest University of Technology and Economics, Hungary; David Busek, Technical University of Prague, Czech Republic; Alexandra Nagy, Budapest University of Technology and Economics, Hungary

## P1a.5 Fan vs. Passive Heat Sink with Heat Pipe in Cooling of High Power LED

Niculina I. Badalan\*; Paul Svasta, University Politehnica of Bucharest, Romania

### P1a.6 Education 4.0 for Tall Thin Engineer in a Data Driven Society

Monica Ciolacu\*, TH Deggendorf, Germany; Paul Svasta, University Politehnica of Bucharest; Waldemar Berg, Germany; Heribert Popp, TH Deggendorf, Germany

## P1a.7 Education 4.0 - Fostering Student Performance with Machine Learning Methods

Monica Ciolacu\*; Ali Fallah Tehrani; Rick Beer; Heribert Popp, TH Deggendorf, Germany

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#### Poster sessions

### P1a.8 LTCC Substrates Based on Low Dielectric Permittivity Diopside-Glass Composite

Beata Synkiewicz\*; Dorota Szwagierczak; Jan Kulawik, Institute of Electron Technology, Poland

## P1a.9 Using SPICE for Multiple -Constraint Choice of Capacitor Bank for Telekom Power Supplies

Dan Butnicu\*; Dorin Neacsu, Technical University of Iasi, Romania

### P1a.10 Production plan scheduling on SMT manufacturing lines

Peter Martinek, Budapest University of Technology and Economics, Hungary

## P1a.11 Scheduling of Printed Circuit Board Production with Mathematical Solvers

Peter Martinek, Budapest University of Technology and Economics, Hungary

## P1a.12 Cardioid, a Wearable Technology

Razvan - Daniel Albu\*; Cornelia Gordan, University of Oradea, Romania

#### P1a.13 ARGOS

Razvan - Daniel Albu\*; Cornelia Gordan, University of Oradea, Romania

## P1a.14 Thermally Conductive Polymer Nanocomposites for Thermal Management of Electronic Packaging

Ismail Hakki Tavman\*; Tuba Evgin, Dokuz Eylul University, Turkey

## P1a.15 Reconfigurable platform for embedded systems teaching

Alexandra Stanciu\*; Titus Constantin N. Balan; Carmen Gerigan; Florin Sandu, Transilvania University of Brasov, Romania

## P1a.16 Electrical and Thermal Investigations on Printed Conductive Paste used in Solderless Assembly for Electronics Technology

Ciprian Ionescu\*; Norocel Codreanu; Gaudentiu Varzaru, University Politehnica of Bucharest, Romania

## P1a.17 VLSI Architecture of Pipeline Image Enhancement System based on Verilog Hardware Description Language

Iuliana Chiuchisan\*; Oana Geman, Stefan cel Mare University of Suceava, Romania

## P1a.18 The Gamification in Engineering - Focusing on Leadership

Todor Vlad Tomas, Technical University of Cluj-Napoca, Romania

#### P1a.19 Challenges in Nutritional Education using Smart Sensors and Personalized Tools

Oana Geman\*; Iuliana Chiuchisan; Roxana Toderean, Stefan cel Mare University of Suceava, Romania

## P1a.20 Multiprocessor visual servoing system for mobile robots servicing mechatronic lines

Petrea S. George\*; Viorel Nicolau; Mihaela Andrei, Dunarea de Jos University of Galati, Romania

## P1a.21 DDR signal integrity characterisation with Mentor Graphics HyperLynx

Mihaela E. Hnatiuc\*, Maritime University of Constanta, Romania; lov Catalin, Electronics, TRIAS Microelectronics, Romania

## P1a.22 Effect of Resistance of Conductive Adhesive Joint on Course of Its Aging

Pavel Mach, Czech Technical University in Prague, Czech Republic

#### Poster sessions

## P1a.23 Microstructure Morphology of No-Clean Lead-Free Solder Alloys Used in Automotive Industry

Mihai Branzei\*; Ioan Plotog, University Politehnica of Bucharest, Romania; Traian Cucu, Alpha Assembly Solutions, Somerset NJ, USA; Alecs Andrei Matei; Bogdan Mihailescu, University Politehnica of Bucharest, Romania

## P1a.24 A Analysis of Self Discharge Characteristics of Electric Double Layer Capacitors

Andrei Drumea; Cristina Marghescu; Mihaela Pantazica\*, University Politehnica of Bucharest, Romania

## Poster Session 1b (Ovidiu Room)

Session Chair: Ciprian IONESCU, University Politehnica of Bucharest, Romania

Session Co-Chair: Oliver KRAMMER, Budapest University of Technology and Economics, Hungary

## P1b.1 Technological solutions for throughput improvement of a Secure Hash Algorithm-256 Engine

Flavius Opritoiu; Sorin Liviu Jurj\*; Mircea Vladutiu, Politehnica University of Timisoara, Romania

## P1b.2 Numerical Investigation of Channel Dimension Effects on the Performance of a Cross Flow Micro Heat Exchanger for Chip Cooling Applications

Ionescu Viorel\*; Neagu Anisoara-Arleziana, Ovidius University of Constanta, Romania

## P1b.3 High-Order Digitally Programmable CFOA Universal Filter Structures Based on State Variable Approach

Ivailo Milanov Pandiev, Technical University of Sofia, Bulgaria

## P1b.4 Temperature Sensitive Active Tamper Detection Circuit

Daniel-Ciprian Vasile\*; Paul Svasta, University Politehnica of Bucharest, Romania

## P1b.5 A wide range fine tuning capacitance multiplier

Gabriel I. Bonteanu, Technical University of Iasi, Romania

## P1b.6 Active Tamper Detection Circuit Based on Statistical Analysis

Daniel-Ciprian Vasile\*; Paul Svasta, University Politehnica of Bucharest, Romania

## P1b.7 Network analyser concept based on quadrature demodulation

Ilie Mihai Alexandru, Technical University of Cluj-Napoca, Romania

#### P1b.8 A tunable gyrator-capacitor active inductor

Gabriel I. Bonteanu\*; Arcadie Cracan, Technical University of Iasi, Romania

## P1b.9 A different approach for measurement of hysteresis losses in magnetic cores

Boris I. Evstatiev; Dimcho V. Kiriakov; Ivan H. Beloev, University of Ruse Angel Kanchev, Bulgaria

## P1b.10 Time measurement techniques for microcontroller performance analysis

Alexandru Buturuga\*; Rodica Constantinescu; Dan Alexandru Stoichescu, University Politehnica of Bucharest, Romania

### P1b.11 Microprocessor Based Electronic System for Control of Induction Heating

Seher Kadirova\*; Daniel Kajtsanov, Rousse University, Bulgaria

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## P1b.12 Microcontroller Based Electronic Control of the Harvester's Header Propulsion Using BLDC Motor

Seher Kadirova\*; Teodor Nenov, Rousse University, Bulgaria

## P1b.13 Embedded Software for IOT Bee Hive Monitoring Node

Mihai G. Vidrascu\*; Paul Svasta, University Politehnica of Bucharest, Romania

## P1b.14 Maintenance-free IOT Gateway Design for Bee Hive Monitoring

Mihai G. Vidrascu\*; Paul Svasta, University Politehnica of Bucharest, Romania

## P1b.15 Smart Data Acquisition Board with Software Calibration of the Nonlinear Sensors

Nistor Nicusor\*; Bogdan Dumitrascu; Dorel Aiordachioaie, Dunarea de Jos University of Galati, Romania

#### P1b.16 Compact SD Card Backup System for Use in Photography

Rajmond Jano, Technical University of Cluj-Napoca, Romania

## P1b.17 Comparison between implementations efficiency of HLS and HDL using operations over Galois Fields

Alexandra Stanciu\*; Carmen Gerigan, Transilvania University of Brasov, Romania

## P1b.18 Wireless Sensor Network and Cloud Platform for Education in Forest Monitoring and Protection

George Suciu\*; Elena Olteanu; Gyorgy Todoran; Victor Suciu; Andrei Scheianu, BEIA Consult & UPB, Romania

## P1b.19 Remote monitoring for experimental Vanadium Redox Battery

George Suciu\*; Adrian Pasat; Cristian Berceanu; Yasemin Curtmola, BEIA Consult & UPB, Romania

### P1b.20 Low cost Lock in Amplifier Solutions

Radu Belea\*; Silviu Epure, Dunarea de Jos University of Galati, Romania

## P1b.21 Equalization techniques for high data rates

Diana E. Bucur, University Politehnica of Bucharest, Romania

### P1b.22 Implementing a Remote Laboratory on a Chip

Octavian Machidon\*; Alina Machidon; Petru Adrian Cotfas; Daniel Tudor Cotfas, Transilvania University of Brasov, Romania

## P1b.23 Pong Game Executable Creation in Borland Pascal with the Possibility to be Executed on a Solar Panel's Control FPGA to Prove that any Executable can be Ported

Roland Szabo\*; Aurel Gontean, Politehnica University of Timisoara, Romania

## P1b.24 Resource Utilization Comparison between Plain FPGA and SoC with FGPA for an Image Processing Application for Robotic Arms Used in Sun Trackers

Roland Szabo\*; Aurel Gontean, Politehnica University of Timisoara, Romania

## **P1b.25** Low Power Aspects of a Microcontroller-based Module with Wireless Communication Andrei Drumea, University Politehnica of Bucharest, Romania

## Saturday, October 28

## 11:30 – 13:15 Poster Session 2 (PRESTIGE Room)

NOTE: Each author must deliver a maximum 3 minutes slide show presentation of her/his work.

Session Chair: Detlef BONFERT, Fraunhofer Institution for Modular Solid State Technologies EMFT

Munich, Germany

Session Co-Chair: Emil LAZARCIUC, Continental Automotive Romania

## **P2.1 Applications of Kramers-Kronig Relations**

Ionelia-Bianca M. Brezeanu\*; Anamaria-Loredana Chiva; Polixenia-Alexandra Paraschivoiu; Rodica C. Negroiu, University Politehnica of Bucharest, Romania

## P2.2 Wavelet Signal Denoising applied on Electromagnetic traces

Mariana Safta\*; Paul Svasta, University Politehnica of Bucharest, Romania; Mihai O. Dima, IFIN-HH, Romania

## P2.3 Transparent USB Splitter for Input Devices

Maria M. Ciolan\*, University Politehnica of Bucharest, Romania; Fabian Henze, Miele Tehnica Brasov, Romania

## P2.4 Influence of Temperature on Supercapacitors Behavior in Series/Parallel Connections

Rodica C. Negroiu\*; Ciprian Ionescu; Paul Svasta; Alexandru Vasile, University Politehnica of Bucharest, Romania

## P2.5 Proof of concept mathematical model of a modulation breaking the Shannon limit

Mircea Bujor, Politehnica University of Timisoara, Romania

## P2.6 Real-Time, Video Quality Monitoring Application for Digital Television Services

Ioan Tache, University Politehnica of Bucharest, Romania

### P2.7 The ROV communication and control

Mihaela E. Hnatiuc\*; Alin Ghilezan, Maritime University of Constanta, Romania

## P2.8 Human-Computer Interface based on Eye Tracking with Dwell Time Selection

Alexandru Pasarica\*; Radu Bozomitu, Gheorghe Asachi Technical University of Iasi, Romania; Cristian Rotariu, Grigore T. Popa University of Medicine and Pharmacy of Iasi, Romania

## P2.9 Methods of Control Improvement in an Eye Tracking Based Human-Computer Interface

Radu G Bozomitu\*; Alexandru Pasarica; Vlad Cehan, Gheorghe Asachi Technical University of Iasi, Romania; Cristian Rotariu; Hariton Costin, Grigore T. Popa University of Medicine and Pharmacy of Iasi, Romania

## P2.10 Intelligent system for determining the consumer profile and generate alarm in case of significant deviations from the profile

Laurentiu Mihai Ionescu; Alin Gheorghita Mazare\*, University of Pitesti, Romania

## P2.11 Low-cost Quasi-distributed Position Sensing Platform based on Blue Fluorescent Optical Fiber

Paul Farago\*; Ramona Galatus, Technical University of Cluj-Napoca, Romania

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## P2.12 Sensors network as part of smart city emergency situations management system

Claudiu Lung\*; Buchman Attila; Sabou Sebastian, Technical University of Cluj Napoca North University Center of Baia Mare, Romania

## P2.13 Intelligent control system with application in nuclear equipment

Daniel Visan; Ioan Lita\*, University of Pitesti, Romania

## P2.14 Comparative analysis of stepper motors in open loop and closed loop used in nuclear engineering

Ioan Lita\*; Daniel Visan, University of Pitesti, Romania

## P2.15 Low cost wireless sensor node with application in sports

Dragos Sacaleanu\*; Lucian A Perisoara; Eduard Spataru; Rodica Stoian, University Politehnica of Bucharest, Romania

## P2.16 SPR Based Hybrid Electro-Optic Biosensor Platform

Ramona Galatus\*, Technical University of Cluj-Napoca, Romania; Cecilia Cristea, University of Medicine and Pharmacy Iuliu Hatieganu, Romania

## P2.17 Development of a dynamically data collection system

Razvan A. Gheorghiu\*; Valentin Iordache; Maria Claudia Surugiu; Ionel Petrescu, University Politehnica of Bucharest, Romania

#### P2.18 Intrusion Detection System Based on Plastic Optical Fiber

Lorant A. Szolga, Technical University of Cluj-Napoca, Romania

#### P2.19 Pre-silicon evaluation on CPA attacks and countermeasures

Brindusa Mihaela G. Damian, University Politehnica of Bucharest, Romania

### P2.20 Tele-measurement with Virtual Instrumentation using Web-Services

Dan-Nicolae Robu; Vlad Fernoaga; George Alex G. Stelea\*; Florin Sandu, Transilvania University of Brasov, Romania

## **P2.21 Instrument Clusters for Monitoring Electric Vehicles**

Lucian A. Perisoara\*; Dragos Sacaleanu; Alexandru Vasile, University Politehnica of Bucharest, Romania

## P2.22 Vehicles Diagnosis based on LabVIEW and CAN interfaces

Lucian A Perisoara\*; Alexandru Vasile; Dragos Sacaleanu, University Politehnica of Bucharest, Romania

## P2.23 Door Automation System for Smart Home Implementation

Ioan Lita\*; Daniel Visan; Alin Gheorghita Mazare; Laurentiu Mihai Ionescu, University of Pitesti, Romania

## P2.24 Crossroad Traffic Monitoring Using Magnetic Sensors

Adrian Zarnescu, Razvan Ungurelu, Andra Gabriela Iordache, Mihai Secere and Madalina Spoiala, Syswin Solutions Bucharest, Romania

## Saturday, October 28

## 14:00 – 16:00 Poster Session 3 (PRESTIGE Room)

NOTE: Each author must deliver a maximum 3 minutes slide show presentation of her/his work.

Session Chair: Viorel NICOLAU, Dunarea de Jos University of Galati, Romania

Session Co-Chair: Radu BOZOMITU, Gheorghe Asachi Technical University of Iasi, Romania

## P3.1 Corrosion Investigations on Lead-Free Solder Alloys in MgCl2 Solution

Bálint Medgyes; György Kósa; Balázs Illés\*, Budapest University of Technology and Economics, Hungary; Magda Lakatos-Varsányi, Bay Zoltan Foundation, Institute for Materials Science and Technology, Hungary; Dániel Rigler; László Gál, Budapest University of Technology and Economics, Hungary

## P3.2 Web-based VR engine in electrical engineering: a proof of concept

Boris I. Evstatiev; Katerina G. Gabrovska-Evstatieva; Teodor B. Iliev; Ivaylo S. Stoyanov, University of Ruse Angel Kanchev, Bulgaria

## P3.3 Modelling Glow Curves of Thermoluminescent Radiometric Devices

Mihai O. Dima, IFIN-HH, Romania

## P3.4 Analysis of Evaporation Process of Thin Ni Films by Factorial Experiments and Taguchi Approach

Pavel Mach, Czech Technical University in Prague, Czech Republic

## P3.5 Package parasitics analysis for input / output digital ports

Peter Balan\*; Paul Svasta; Rodica Constantinescu, University Politehnica of Bucharest, Romania

## P3.6 Capacitance Losses in Coplanar and Two Layer Capacitive Touch Panels

Hunor-Thorsten M. Cutlac, Continental Automotive Romania, Timisoara

## P3.7 A Study of Losses in Planar Transformers with Different Layer Structure

Constantin G. Ropoteanu\*; Paul Svasta; Ciprian Ionescu, University Politehnica of Bucharest, Romania

## P3.8 A Comparative Simulation Analisys of Toroid and Planar Magnetic Cores Near MHz Region

Constantin G. Ropoteanu\*; Paul Svasta; Ciprian Ionescu, University Politehnica of Bucharest, Romania

#### P3.9 Simulation Model for Automotive High Pressure Fuel Pump

Laszlo Molnar, Continental Atomotive Romania/ Politehnica University Timisoara, Romania

## P3.10 Multiphase ZVS BUCK DC-DC Converter with Voltage Mode Peak Current Control

Georgi Tsvetanov Kanov\*; Tihomir Brusev; Elissaveta D. Gadjeva, Technical University of Sofia, Bulgaria

## P3.11 Application of Postprocessing in Probe for Automated Model Parameter Extraction of Photovoltaic Panels

Elissaveta. D. Gadjeva\*; Georgi Tsvetanov Kanov, Technical University of Sofia, Bulgaria

## P3.12 Analysis of Transient Signals by Feature Extraction from Time-Frequency Images

Nistor Nicusor\*; Bogdan Dumitrascu; Dorel Aiordachioaie, Dunarea de Jos University of Galati, Romania

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# P3.13 On microstrip parameter estimation, based on the design topology of the nonlinear transformation

Nistor Nicusor\*; Cazacu Nelu, Dunarea de Jos University of Galati, Romania; Tudor Gabriela, Colegiul National Calistrat Hogas, Romania

# P3.14 Hardware in the Loop Simulation Platform for Intelligent Transport Systems

Florin Codrut Nemtanu\*; Ilona Costea; Dorin Laurentiu Buretea; Luigi Gabriel Obreja, University Politehnica of Bucharest, Romania

#### P3.15 A statistical estimation analysis of indoor positioning WLAN based fingerprinting

Dumitru Iulian Nastac\*; Alexandru Florentin Iftimie; Octavian Arsene; Costel Cherciu, University Politehnica of Bucharest, Romania

#### P3.16 Safety device for protecting persons against falling injuries

Dumitru Iulian Nastac\*; Alexandru Popescu, University Politehnica of Bucharest, Romania

## P3.17 Low Power Renewable Energy System used for Power Back-up Applications

Marius Ovidiu Neamtu\*; Nistor Daniel Trip; Adrian Traian Burca, University of Oradea, Romania

# P3.18 Modelling of Power Inverters Used in PV Systems

Teodor B. Iliev\*; Ivaylo Stoyanov; Grigor Mihaylov; Boris I. Evstatiev, University of Ruse Angel Kanchev, Bulgaria

#### P3.19 Intelligent Video Surveillance System

Ilona Costea, University Politehnica of Bucharest, Romania

#### P3.20 Thermal Via Placement for High-Power Applications

Alexandra Fodor, Technical University of Cluj-Napoca, Romania

#### P3.21 Model-in-the-Loop for determining the parameters of a DC motor

Marius-Alexandru Taut, Technical University of Cluj-Napoca, Romania

#### P3.22 Mathematical Models of Control System Used in Power Supply Circuits

Ionel Horea Baciu, Technical University of Cluj-Napoca, Romania

#### P3.23 Using SPICE for Reliability based Design of Capacitor Bank for Telecom Power Supplies

Dan Butnicu\*; Dorin Neacsu, Technical University of Iasi, Romania

#### P3.24 Line Encoder with Serial Data Transmission for Automotive Applications

Ioan Lita\*; Daniel Visan; Laurentiu Mihai Ionescu; Alin Gheorghita Mazare, University of Pitesti, Romania

#### P3.25 Improved Low Computational Method for Siren Detection

Robert A. Dobre\*; Cristian Negrescu; Dumitru Stanomir, University Politehnica of Bucharest, Romania

## P3.26 High Temperature Silicon Carbide (SiC) Sensors for Automotive Applications

Gheorghe Pristavu\*; Gheorghe Brezeanu; Florin Draghici, University Politehnica of Bucharest, Romania

# P3.27 Dynamic PV Array Reconfiguration under Suboptimal Conditions in Hybrid Solar Energy Harvesting Systems

Szilárd Bulárka\*; Aurel Gontean, Politehnica University of Timisoara, Romania

# Industry

## **ELINCLUS** ELectronic INnovation CLUSter

**EMC**: Association for Promoting Electronics Technology – APTE (www.apte.org.ro)

Founded 2011; 70 registered members

President: Prof.DHC. mult. Paul SVASTA, Ph.D.

**Executive Manager**: Lect. Eng. Bogdan Mihăilescu, Ph.D.

Founding member of the Clusters Association from Romania, CLUSTERO - www.clustero.eu

- Member of Adriatic Danube Mechatronics Cluster Network
- International collaboration with Mecatech Cluster Wallonie and Wallonie Export Agency
- International collaboration with Omnipack Cluster Hungary (http://omnipack.hu/)



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Automotive & Industrial

Applied electronics

Aerospace &

Telecommunication

ECO-Environment &

Renewable energies.

Mechatronics

# Sector of activity:

 Mechatronics, Automotive electronics, Aerospace electronics, Renewable energies, Communications, Agriculture and wood industry, Home appliance and consumer goods, ECO – environment

# Cluster strengths:

 Research & Development of innovative new electronics products in area of mechatronics, aerospace, automotive and s.o.; Technical and technological support for prototyping and small series; IP technology transfer;

ELINCLUS Headquarters: Bucharest, Bd. Iuliu Maniu nr.1-3

E-mail: elinclus@elinclus.ro Web page: www.elinclus.ro

# ASOCIATIA PENTRU PROMOVAREA TEHNOLOGIEI ELECTRONICE







The Association for Promoting Electronics Technology is the entity of management of the ELINCLUS Cluster, who has currently 88 members. APTE was founded in 2002, by the Center for Technological Electronics and Interconnection Techniques, UPB-CETTI, and highly respected members of electronics industry, to sustain the electronics packaging education, in a climate of trust, ethics and social responsibility.

APTE is the Managing Entity of the ELINCLUS Cluster. For its activity APTE has received the Silver Label from The European Secretariat for Cluster Analysis in 2016.

In addition to the areas of science, engineering, microelectronics and packaging, the training encompass the broader areas of business, economics.

APTE offers annually a comprehensive set of short courses on electronic packaging technologies, standards training and certification, management, industrial organization, designed to serve the needs of electronic industry. Apte is organizing and sponsoring annually International Symposium for Design and Technology of Electronic Packages and TIE Students Professional Contest.

Learn more about APTE at apte.org.ro.



# **APTE- Association for Promoting Electronic Tehnology**

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As a distribution company for test and measurement equipment, ARC Brasov represents more than 30 leading brand names, all front-runners in their domain. Meaning that:

- Our suppliers enjoy brand awareness, market share, recognition, and of course sales.
- Our clients enjoy the very best equipment, gaining competitive advantages through the highest ROI and the lowest TCO.

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At ARC Brasov, we develop.

- Starting with the already traditional for us energetic and electrical sectors, we expanded to 8 distinct segments, including food, medical, telecom.
- Starting with the test and measurement distribution, we developed to Metrology (the best-equipped laboratory in the country), reliable Service, and high-quality Training (e.g. the coveted Level One Infrared Thermography Certification)
- Starting with the freestanding equipment, we developed to high-tech, unique customized solutions.

#### At ARC Brasov, we grow:

- Our suppliers' turnover,
- Our clients' competitiveness,
- Our people' knowledge and expertise.

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#### ASM Assembly Systems GmbH & Co. KG

Rupert-Mayer-Str. 44 81379 Munich, Germany

Phone: +49 (0) 89 20800 - 27819 Fax: +49 (0) 89 20800 - 36692

E-mail: smt-solutions.de@asmpt.com



# **Industry**



Bd. Stirbei Voda Nr. 19 A Bl. D4A, sc. 1, apt. 7 Craiova, Dolj, Romania Phone: +40 351 176969 Email: office@caelynx.ro Web: www.caelynx.ro

**Caelynx Europe** ofera servicii de inginerie 3D, consultanta tehnica, proiectare si analiza CAE in domeniile auto, aerospatial, energie, aparare, medicina.









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#### Servicii FEA:

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- Aerodinamica: calculul aripii de avion, predictie coeficient portanta si drag, flutter, stabilitate
- Analiza la grup motopropulsor: motoare cu ardere interna, transmisii, generatoare.
- **Optimizare:** optimizare neliniara avand variabile cu forme complexe.
- **Analiza la impact:** analiza de impact conform regulamentelor si directivelor europene, cinematica ocupantilor, impactul cu pasarea.
- Caracterizarea materialelor: compozite, hiperelastice, fracturarea metalelor



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Comtest Engineering Holland supplies high performance RF shielded rooms, reverberation chambers and semi or full anechoic chambers. The company's headquarters and production facility is located in The Netherlands and was founded in 1985. We are a professional organization and recognized for quality and flexibility. Comtest high performance RF shielded doors, mode-stirrer systems and microwave absorbers have been internationally recognized as state of the art products. The best EMC laboratory in Romania, fully accredited standards CISPR 16 was implemented by Comtest Engineering Holland in collaboration with COMTEST Romania.

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In Continental Automotive Romania, over 8000 people work in the R&D centers in Timisoara, Sibiu, lasi and Brasov and in the production plants in Timisoara, Sibiu and Brasov. Our engineers develop software solutions, hardware and mechanical designs for body, safety, engine and transmission applications as well as navigation systems and instrument clusters for future cars and trucks.

# University collaboration

- > Research contracts
- Teaching Program
- Conti InfoCenter
- ContiLab
- Sponsorship
- Recruiting fairs

- > Summer practice
- Diploma Projects
- > Private scholarship
- > Master Program
- > PhD Projects
- > Company visits, workshops, competitions

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## **Industry**



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Our toolset includes total cost of ownership focus and methodologies from six-sigma. Major represented brands are Alpha, Tecnometal and









TECNOMETAL has been working as Italian electronics manufacturer, producing circuits (PCBs) and prototypes services for electronics industry. Our products are complying with RoHS & REACH EU directives and are check according to the IPC-A600 Class 2 standard.









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With over 9,300 employees in 18 locations on 4 continents, Marquardt Group is a global leader in electro-mechanical and electronic switches and switching systems for the automotive, electric power tools and home appliance industries.

Since 2006, Marquardt Sibiu Romania sustains the business in 5 production departments - Electronics, Plastic Molding, Assembly, Painting&Laser, Microswitches - and a Research & Development Center, based on the efforts and talents of over 2,900 employees. Although our company has been active only 11 years in Romania, we benefit of the 92 years experience of the Marquardt Group in Germany and all over the world.

We remain committed to creating and offering quality products and processes for some of the most renowned companies in their industry.

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OSRAM, based in Munich, is a globally leading lighting manufacturer with a history dating back about 100 years. The product portfolio includes high-tech applications based on semiconductor

# **OSRAM**

technology such as infrared or laser lighting. The products are used in highly diverse applications ranging from virtual reality, autonomous driving or mobile phones to smart and connected lighting solutions in buildings and cities. In automotive lighting, the company is the global market and technology leader.

Our company, which is internationally oriented, had around 24,6001 employees worldwide at the end of the fiscal year 2016 and generated a revenue of 3.791 billion Euros in that year.

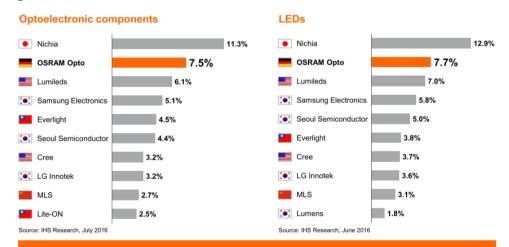
With LED-based products making up a share of 61 percent of the total turnover, the company is setting significant trends with regard to technological changes in the lighting market. Around 91 percent of research & development expenditures are in the LED area.



OSRAM Opto Semiconductors – A consistent, well positioned market leader<sup>1</sup>

- Number 1 in Automotive
- Number 1 in Infrared Components Number 1 in Projection Number 1 in Industry
- Among Top 8 in General Lighting

# IHS global market shares



According to IHS, OSRAM Opto Semiconductors is a strong #2 in the market for optoelectronic components and for packaged LEDs.

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<sup>&</sup>lt;sup>1</sup> Based on IHS Market Report 2016

**SEM Communication & GEST Labs S.r.l.** is a Material Science Laboratory and a Software Design House located in the Milan Area. Our company has achieved a leadership role in the Italian electronic market for laboratory services, professional education and consultancy, software engineering, and design services on electronic boards and components.

Our customers operate as leading companies in the Aerospace, Automotive, Home Appliance, Electronics, Power and Automation, Medical and ICT industry.

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**Failure Analysis** 



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# **ANSYS HFSS - High Frequency Structure Simulator**

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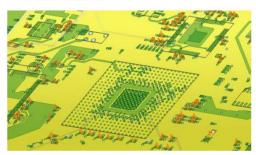


#### **Available Solvers**

- Full Wave Finite Element Method (FEM)
- Integral Equation technique (MoM)
- SBR+ (Shooting Bouncing Ray)
- Transient Solver (DGTD)

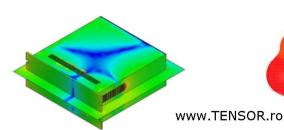
# Applications

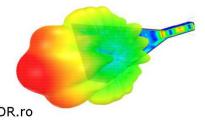
- Antennas
- EMI/EMC
- Satellite equipment
- Integrated circuit packages
- Connectors
- Radar equipment
- Routers
- Wireless communication gear
- And more ...



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- High accuracy electromagnetic hybrid solver
- Fast setup and simulation in TD & FD
- Automatic Port setup
- Automatic export of Touchstone file for System Level Analysis
- Various types of simulation:
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   Time Domain Reflectometry, Signal
   Integrity Analysis, Power Integrity
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Acronym: SIOSTAG, Website: http://siostag.electro-optic.ro

### **ABOUT SIOSTAG**

The project involves synergy between two entities: a company, represented by the Electro Optical Components SRL, playing project coordinator role, and University Politehnica of Bucharest - Center for Technological Electronics and Interconnection Techniques (UPB-CETTI), as partner. The common purpose is to realize a prototype of a gyroscopic stabilized positioning system intended to be used on mobile land and air vectors proving high standards of efficiency.





#### **OBJECTIVES**

- \* Improvement of performances of the stabilizing module using MEMS gyroscopes developed within the company, through redesigning activities;
- \* Development of a BLDC (brushless DC) motor driver having implemented commands received from the stabilizing module;
- \* Design and manufacturing of the system prototype by integration of the stabilization module and of the BLDC driver in a stabilized two axes Pan & Tilt platform;
- \* Creation of skills among the project's partners in development of two and three axes stabilized systems and their implementation on mobile terrestrial and aerial platforms;
- \* Development of skills related to testing of stabilized blocks using MEMS gyroscopes and also of stabilized platforms using these devices.

# **PARTNERSHIP**







Coordinator

Partner

**Project Code:** PN-III-P2-2.1-PTE-2016-0147

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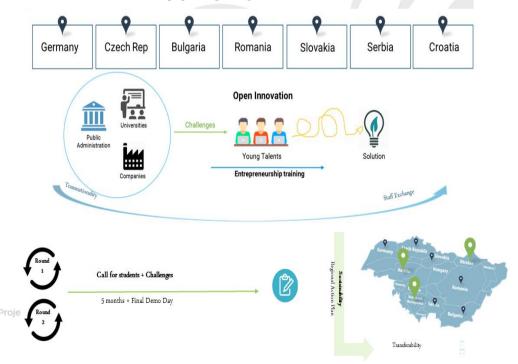
# **DA-SPACE**

The Danube region is still very fragmented and presents great disparities in prosperity, jobs opportunities and innovation capacities. DA-SPACE addresses these challenges by piloting a model of open innovation lab in which companies, public authorities, universities and the civil society can create fundaments for innovation together with young talents. The DA-SPACE labs promote a cross-disciplinary and transnational cooperation among different stakeholders able to generate new solutions and nurture the entrepreneurial skills of all the actors involved.

The exchange among these actors in the DA-SPACE labs will profit both sides:

- young talents will work on real business cases and will be able to test and prototype their ideas in a safe environment, acquiring entrepreneurial skills;
- seekers (e.g. small and medium-sized enterprises, public authorities etc.) will test cocreation and open innovation methods and will benefit from the exchange with young innovators. Besides, their employees involved as mentors in the lab will improve their business competences responding to market requirements and developing skills for future job needs.

Learn more about DA-SPACE Project at <u>www.interreg-danube.eu</u>. Visit APTE web page at <u>apte.org.ro</u>.



# **MECA**

Micro Electronics Cloud Alliance www.meca-project.eu/



#### **ABOUT MECA**

MECA brings together 18 partners, Higher Education Institutions (HEI) and Small and Medium Enterprises (SME), from nine European countries to develop a Cloud-based European infrastructure for education in microelectronics, providing a large range of Open Educational Resources (OER), remote access to educational & professional software tools and practice-based learning facilities.





#### **OBJECTIVES**

\* Analysing the needs of institutional teachers and students in a shared IT infrastructure for teaching materials and learning resources; \* Networking of project partners to share ideas, methodologies and experiences to improve HE programmes and to develop jobspecific training modules; \* Development of mClouds system and realization of a shared server infrastructure, shared e-learning resources and the remote access to the CAD tools; \* Implementation of jointly developed cloud-based OERs in microelectronics in the partners' educational contexts.

#### **PARTNERS**



Knowledge Alliance 562206-EPP-1-2015-1-BG-EPPKA2-KA

# Location:

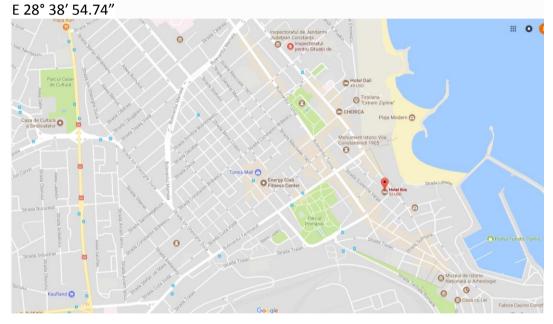
# The conference and exhibition takes place at:

Hotel IBIS, Mircea cel Batran Bld. 39B-41, Constanța, Romania (see the map below).



# **GPS** coordinates:

N 44° 11′ 0.51″



# The Registration is at:

Hotel IBIS, Constanța, Romania

For more information and access: http://www.ibishotels.ro/hotel-ibis-constanta

# **CONTACT INFORMATION**

**Registration Officer:** Delia Lepădatu

0040.720.093.945

0040.769.247.904

Travel Advisor: Mihaela Hnatiuc

0040.749.098.269

Multimedia: Bogdan Mihăilescu

0040.723.077.221

# AN INVITATION TO SIITME 2018





On behalf of local Organizing Committee, it is my very great pleasure to welcome you to the 24<sup>-th</sup> edition of SIITME Conference.

The Faculty of Electronics, Telecommunications and Information Technology of Gheorghe Asachi Technical University of lasi is the proud coorganizer of this prestigious, scientific event.

Gheorghe Asachi Technical University was founded in 1937 and now it has 11 faculties,

covering 27 fields with more than 16000 students and about 900 academic staff.



The Faculty of Electronics, Telecommunications and Information Technology is located in the Academic Palace from Copou, an architectural monument, built at the end of the 19<sup>th</sup> century. In this building you can admire the Library, which has been voted the most beautiful one in the world, according to a survey conducted by the portal boredpand.com, the impressive Hall of Lost Steps with Sabin Balasa's paintings and the famous Aula with painting representing King Carol I and Queen Elizabeth.

laşi is the largest city in eastern Romania and the seat of Iaşi County. Located in the historical region of Moldavia, Iaşi has traditionally been one of the leading centers of Romanian social, cultural, academic and artistic life.

We think it is very significant that the world of both academia and industry are brought together by this conference. It emphasizes the interest and the link between the main actors: young researchers, academic staff and not last the representatives of electronics industry.

Our local organizing committee will make sure that the next edition of SIITME will continue the already established tradition of encouraging dialogue between academia and industry.

We are looking forward to welcoming you in Iaşi at SIITME 2018.

# Prof. Daniela Tărniceriu, Ph.D.

Dean of The Faculty of Electronics, Telecommunication and Information Technology, Gheorghe Asachi Technical University of Iasi
SIITME 2017 Conference Chair



# Dear Participants,

I warmly invite you to the next edition of the conference, SIITME 2018.



We are proud to host this prestigious event in Iaşi, one of the most beautiful cities of Romania and a citadel of Romanian culture, education and science. According to local traditions and historical sources, Iaşi was built on seven hills, the great hilly landscape making possible to compare the town with the city of Rome. Iaşi became in the last two decades a strong high tech R&D

and IT environment, hosting numerous well known national and multi-national companies. One of them is Continental Automotive Romania, Iași location, which will welcome you in October 2018.

Continental develops pioneering technologies and services for sustainable and connected mobility of people and their goods. Founded in 1871, the technology company offers safe, efficient, intelligent and affordable solutions for vehicles, machines, traffic and transport. In 2016, Continental generated sales of €40.5 billion and currently employs more than 230,000 people in 56 countries.

Continental Iaşi has been established in 2006. In 11 years of activity, the Research & Development center grew from a number of 30 people in 2006 to over 1500 employees, becoming the largest technical employer from Iaşi. During this period, the company invested over 40 million EURO locally.

SIITME is nowadays a true convention of the electronic packaging community and, generally speaking, of the electronics field, being a well established and internationally recognized scientific and technical event in the Central and Eastern Europe area.

It is my great pleasure to invite you to join the next SIITME, in 2018. The participants, mainly from academia and industry, will have the opportunity to disseminate their

research works and projects, to share experience, to form partnerships and to spend a few days in a very pleasant and friendly environment.

Hope to see all of you in Iași!

#### Marian Petrescu, Ph.D.

Continental Automotive Romania, Iasi Location Manager SIITME Conference and Exhibition General Industrial Chair





"Gheorghe Asachi" Technical
University of lasi
Faculty of Electronics,
Telecommunications and Information
Technology

**Continental Automotive Romania** 



**Association for Promoting Electronics Technology - APTE** 

# CALL FOR PAPER

**SIITME 2018** 



October 25<sup>th</sup>-28<sup>th</sup>, 2018 24<sup>th</sup> IEEE International Symposium for Design and Technology in Electronic Packaging laşi, Romania

www.siitme.ro









