



IEEE International Conference on Design & Test of integrated micro & nano-Systems

28 April - 01 May 2019 Gammarth, Tunis, Tunisia



Technical Program Summary IEEE DTS 2019

Sunday April, 28, 2019	14:00-18:00	Registration
	16:00-17:00	Half Day Tutorial: "High-Speed I/O Testing in High-Volume Manufacturing" by Dr. Saleem Abdelmadher (Intel Corporation-USA) [Part 1] (VALETTA Room)
	17:00-17:15	Coffee Break
	17:15-18:15	Half Day Tutorial: "High-Speed I/O Testing in High-Volume Manufacturing" by Dr. Saleem Abdelmadher (Intel Corporation-USA) [Part2] (VALETTA Room)
Monday April, 29, 2019	08:30-08:30	Registration
	08:30-09:00	Opening (DIDON 3 Room)
	09:00-10:00	Keynote 1: "Energizing Miniaturized IoT Sensors" by Prof. Gabriel A. Rincón-Mora (Georgia Institute of Technology, USA) (DIDON 3 Room)
	10:00-10:30	Coffee Break
	10:30-12:30	Session 1-1: Analog & Digital Design (VALETTA Room)
	12:30-14:00	Session 2-1: Analog & Digital Design (VALETTA Room)
Tuesday April, 30, 2019	14:00-16:00	Session 3-1 RF Design (VALETTA Room)
	16:00-16:30	Coffee Break
	16:30-18:30	Special Session: NANOMaterials & MicroSys/Ems for sustainable Development (NANOISENET) by Prof. Cherif Dridi (CRMN Sousse) & Prof. Skandar Basrouir (TIMA Grenoble) (DIDON 3 Room)
	08:00-09:00	Registration
	09:00-10:00	Keynote 2: Industrial invitation papers (DIDON 3 Room)
	10:00-10:30	Paper 1: "How enabling AI at the Edge and running on compact and low power IoT devices" by Mr. Mohamed Ben Ahmed (ST Microelectronics) Paper 2: "Modern testing in today world" by Mrs. Emma Ayadi (Primatex Engineering)
Wednesday May, 01, 2019	10:30-12:30	Short oral Session: All Scopes (DIDON 3 Room)
	12:30-14:00	Coffee Break
	14:30-15:30	Workshop 2: "Risk Storming & Brand your Strategy" by Mrs. Emma Ayadi (Primatex Engineering) (VALETTA Room)
	15:30-23:00	Lunch
Thursday May, 02, 2019	09:00-10:00	Keynote 3: "Broadband, Linear, and High-Efficiency Mm-Wave Power Amplifiers The Unreasonable Quest for "Perfect" 5G Mm-Wave Power Amplifiers and Some Reasonable Solutions" By Prof. Hua Wang (Georgia Institute of Technology, USA) (DIDON 3 Room)
	10:00-10:30	Coffee Break
	10:30-12:30	Social Event
	12:30-14:00	Keynote 4: "Droplet-based microfluidics: A new approach to design and study smart digital Microsystems" By Prof. Abdelillah El Abed (Quantum and Molecular Photonics Laboratory (LPQM), Ecole Normale Supérieure Paris Saclay, Paris Saclay University, France.) (DIDON 3 Room)
Friday May, 03, 2019	14:30-15:30	Session 4-1: MEMS Design and Sensors (VALETTA Room)
	15:30-23:00	Session 4-2: Biomedical Systems Design & Invited paper: "Screen-printed electrodes as cost-effective and miniaturised analytical tools for environmental and biomedical analyses" by Prof. Fabiana Arduini (University of Rome "Tor Vergata", Italy) (DIDON 3 Room)
	12:30-13:00	Closing Session (DIDON 3 Room)





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IEEE DTS'2019 TECHNICAL PROGRAM

Day: Sunday, April - 28 - 2019

14:00 - 18:00

Registration

16:00 - 17:00

Half-Day Tutorial: High-Speed I/O Testing in High-Volume Manufacturing.
Speaker: **Dr. Salem Abdennadher** (Intel Corporation USA) (**Part 1**)

17:00 - 17:15

Coffee Break

17:15 - 18:15

Half-Day Tutorial: High-Speed I/O Testing in High-Volume Manufacturing,
Speaker: **Dr. Salem Abdennadher** (Intel Corporation USA) (**Part 2**)





Day: Monday, April - 29th - 2019

08:00 - 08:30 **Registration**

08:30 - 09:00 **Opening**

09:00 - 10:00

Keynote 1: Energizing Miniaturized IoT Sensors

Speaker: Gabriel A. Rincón-Mora (Georgia Institute of Technology, USA)

Session Chairs: Chiheb Rebai, SUPCOM-Tunisia

Hassen Mnif, ENET'Com-Tunisia

10:00 - 10:30 **Coffee Break**

10:30 - 12:30

Workshop 1: Challenges and Emerging Solutions in Testing Embedded IO interfaces in 2.5D and 3D Systems

Speaker: Salem Abdennadher (Intel Corporation, USA)

Session Chair: Hatem Trabelsi, ENIS-Tunisia

10:30 - 12:30

Session 1-1: Analog and Digital Design

Session Chairs: Kamel Besbes, CRMN-Tunisia

Ahmed Fakhfakh, ENET'Com-Tunisia

10:30 - 10:50

A Practical HfO₂-based OxRAM Memristor Model Suitable for Circuit Design and Simulation; Khaoula Mbarek, Faten Rziga Ouaja, Sami Ghedira and Kamel Besbes; Microelectronics & Instrumentation Laboratory University of Monastir-Tunisia; Centre for Research on Microelectronics & Nanotechnology Sousse Technology-Tunisia.

10:50 - 11:10

The Nonlinear Bipolar and Unipolar Switching Behavior of a Memristor; Sami Ghedira, Khaoula Mbarek, Faten Rziga Ouaja and Kamel Besbes, Microelectronics & Instrumentation Laboratory, University of Monastir -Tunisia; Centre for Research on Microelectronics & Nanotechnology Sousse Technology-Tunisia.

11:10 - 11:30

Fault Attacks Resistant AES Hardware Implementation; Hassen Mestiri, Noura Benhadj youssef and Mohsen Machhout; Electronics and Micro-Electronics Laboratory, Faculty of Sciences of Monastir, Tunisia; Higher Institute of Applied Science and Technology of Sousse, University of Sousse, Tunisia.

11:30 - 11:50

On the Metamodeling of Analog Circuits with Discrete Components: Application to the optimal design of a multifunctional filter; Amel Garbaya, Mouna Kotti, Mourad Fakhfakh and Esteban Tlelo-Cuautle; University of Sfax- Tunisia; University of Gabes-Tunisia, INAOE-Mexico.





- 11:50 - 12:10 **Smart Adaptable Indoor Lighting System (SAILS);** *Salah Eddine Bouzid, Mohamed Mbarki, Cherif Dridi and Mohamed Nazih Omri*; MARS Research Laboratory, University of Sousse, Tunisia; LAUM Acoustics Laboratory of Le Mans University, France; NANOMISENE, CRMN of Sousse, Tunisia.
- 12:10 - 12:30 **Architectural Choices for Implementing a Secure ECC-based Light weight RFID Tag;** *Souhir Gabsi, Vincent Beroulle, Hamdi Belgacem and Mohsen Machhout*, EμElab Monastir, Faculty of Sciences of Monastir-Tunisia, Univ. Grenoble Alpes Grenoble INP, LCIS-France.
- 12:30 - 14:00 **Lunch**

14:00 - 16:00

Session 2-1: Analog and Digital Design

Session Chairs: *Mohamed Abid, ENIS-Tunisia*

Antonio Maffucci, Institute for Nuclear Physics Frascati, Italy

- 14:00 - 14:20 **A new FPGA accelerator based on circular buffer unit per orientation for a fast and optimised GLCM and Texture feature computation ;** *Mohamed Amin Ben Atitallah, Rostom Kachouri and Hassene Mnif* ; LETI (E.N.I.S.), University of Sfax, Tunisia ; National Engineering School of Gabes (ENIG), University of Gabes, Tunisia ; Gaspard Monge Computer Science Laboratory ESIEE-Paris University Paris-Est Marne-la-Vallée, France ; ENET'com Sfax, Tunisia.
- 14:20 - 14:40 **Efficient embedded software implementation of a low cost robot localization system;** *Nader Ben Amor, Mouna Baklouti, Khaoula Barhoumi and Mohamed Jallouli*; CES research lab, Tunisia.
- 14:40 - 15:00 **Low-Complexity transform algorithm for Versatile Video Coding;** *Bouthaina Abdallah, Fatma Belghith, and Nouri Masmoudi*; Electronics and Information Technology Laboratory, National School of Engineers of Sfax, University of sfax, Tunisia.
- 15:00 - 15:20 **Implementation of convolutional-LSTM network based on CPU, GPU and pynq-z1 board;** *Amel Mahjoub and Mohamed Atri*; Laboratory of Electronics and Micro-electronics, Faculty of Sciences, Monastir University, Tunisia.
- 15:20 - 15:40 **Fast intra prediction decision algorithm for the QTBT structure;** *Naima Zouidi, Fatma Belghith, Amina Kessentini and Nouri Masmoudi*; Electronics and Information Technology Laboratory, National School of Engineers of Sfax, University of sfax, Tunisia.
- 15:40 - 16:00 **Electro thermal analysis of 3D Memristive 1D-1RRAM Crossbar with Carbon Nanotube Electrodes;** *Fakhreddine Zayer, Khitem Lahbacha, Wael Dghais, Hamdi Belgacem, Massimiliano de Magistris, Antonio Maffucci and Alexander V. Melnikov*; Laboratory of





Elec. And Microelec. National Eng. School of Monastir, Univ. of Monastir, Monastir, Tunisia; Inst. of App. Sc. and Techn. of Sousse, Dep. Electrical Eng. & Inform. Techn.; University of Naples Federico II, Naples, Italy; Dep. Of Electrical and Information Engineering University of Cassino and S.L. Cassino, Italy; INFN, Institute for Nuclear Physics Frascati, Italy, Institute for Nuclear Problems Belarusian State University Minsk, Belarus.

14:00 - 16:00

Session 2-2: Nano Electronic Systems

Session Chairs : *Kamel Besbes, CRMN-Tunisia*
Brahim Mezghani, ENIS-Tunisia

- 14:00 - 14:20 **Electrical characterizations of Schottky diode with zinc oxide nanowires;** *Ahlem Rouis, Neila Hizem and Adel Kalboussi* ; Faculty of Sciences of Monastir, Faculty of Sciences Gafsa, Tunisia.
- 14:20 - 14:40 **Simulation of Pentacene Organic Transistor by Modifying the Gate Dielectric Thickness;** *Aicha Boujnah, Aïmen Boubaker, Adel Kalboussi, Shou Li and Kamal Lmimouni*, Laboratory of microelectronics and instrumentations, Faculty of sciences Monastir- Tunisia, IEMN, CNRS University Lille 1, France.
- 14:40 - 15:00 **Fast and Accurate Simulation of Ultrascaled Carbon Nanotube Field-Effect Transistor Using ANN Sub-Modeling Technique;** *Khalil Tamersit and Fayçal Djeflal*, Department of Electronics and Telecommunications, University 8 May 1945 – Guelma, Algeria. LEA; Department of Electronics, University of Batna 2, Algeria. LEPCM, University of Batna 1, Algeria.
- 15:00 - 15:20 **Numerical Study of a New Junctionless Tunneling Field-Effect Transistor Based on Graphene Nanoribbon;** *Khalil Tamersit and Fayçal Djeflal*, Department of Electronics and Telecommunications, University 8 May 1945 - Guelma, Algeria; LEA, Department of Electronics, University of Batna 2, Algeria. LEPCM, University of Batna 1, Algeria.
- 15:20 - 15:40 **Atomistic Simulation of a New Label-Free DNA Nano sensor Based on Ballistic Carbon Nanotube Field-Effect Transistor;** *Khalil Tamersit and Fayçal Djeflal*, Department of Electronics and Telecommunications, University 8 May 1945 - Guelma, Algeria. LEA; Department of Electronics, University of Batna 2, Algeria. LEPCM, University of Batna 1, Algeria.
- 15:40 - 16:00 **Reduction of an S-Bend structure size for optic telecommunication;** *Brik Fatima, Harize Saliha and Khalfi Redouane*; Technological Sciences Faculty, University BMA, Annaba, Algeria.
- 16:00 - 16:30 **Coffee Break**





16:30 - 18:10

Special Session: NANOMaterials & MicroSystEms for sustainable
Development (NANOMISENE)

Session Chairs: *Skander Basrou, TIMA-France*
Cherif Dridi, CRMN-Tunisia

- 16:30 - 16:50 **Piezoelectric transducers for biological and medical applications;** *Skandar Basrou* ;
TIMA Laboratory, Grenoble, France
- 16:50 - 17:10 **Humidity sensor using subthreshold regime of flexible organic field effect transistor:
concomitant effect of gate leakage current and semiconductor conductivity ;** *Mohsen
Erouel, Abdou Karim Diallo, El Hadji Babacar Ly and Mané Seck*; Laboratory of Physics of
Materials and Nanomaterials Applied at Environment, Faculty of Sciences in Gabes,
Gabes University, Tunisia; Department of Applied Physics, UFR S.A.T, Gaston Berger
University, Saint Louis, Senegal.
- 17:10 - 17:30 **Lanthanide activated phosphors for photovoltaic and biological applications**
Lanthanide activated phosphors for photovoltaic and biological applications;
Mohamed Dammak, University of Sfax, Tunisia
- 17:30 - 17:50 **Development of Single-Electron Transistor and Organic FET for memory and gas sensor
applications;** *Aimen Boubaker, Abdelghaffar Nasri, Adel Kalboussi*, Laboratory of
Microelectronics and Instrumentation, University of Monastir, Tunisia.
- 17:50 - 18:10 **Plasmonic silver nanoparticles for light trapping in silicon solar
Cells;** *Bécher Dridi Rezgui, Leila Manai, Brahim Bessaïs, Damien Barakel, Philippe Torchi,
Olivier Palais*; Research and Technology Centre of Energy, Technopôle Borj-Cédria,
Tunisia; Institut Matériaux Microélectronique et Nanosciences de Provence, (IM2NP),
France.

16:30 - 18:30

Session 3-1: RF Design

Session Chairs: *Noureddine Boulejfen, CRMN-Tunisia*
Hatem Trabelsi, ENIS-Tunisia

- 16:30 - 16:50 **Analysis and design of chirped pulse generator for WBAN transmitter;** *Benali Saif,
Bettaieb Mouna, Bouzid Ghazi and Trabelsi Hatem*; METS research Group, National
Engineering School of Sfax, Tunisia.





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- 16:50 - 17:10 **Analysis and optimization of RF Front-End for MICS Band Receiver;** *Mouna Bettaieb, Saif Benali, Ghazi Bouzid and Hatem Trabelsi*; METS research Group, National Engineering School of Sfax, Tunisia.
- 17:10 - 17:30 **Study of a dual longitudinal and shear acoustic wave ZnO transducer in the gigahertz frequency range: application to viscosity measurement and first step for device integration ;** *Hatem Dahmani, Ibrahim Zaaroura, Pierre Campistron, Julien Carlier, Malika Toubal and Bertrand Nongaillard* ;Univ. Polytechnique Hauts-de-France, CNRS, Univ. Lille, ISEN, Centrale Lille, UMR 8520 - IEMN - DOAE – France ; Univ. Polytechnique Hauts-de-France, CNRS, UMR 2201- LAMIH -France.
- 17:30 - 17:50 **Design of LowCost Cognitive Radio Platform for Demonstration and Testing Purposes;** *Moatz Bahgat*; Faculty of Engineering, Alexandria University, Alexendria, Egypt.
- 17:50 - 18:10 **Design of UHF RFID body-worn textile Tag for wireless applications;** *Faten Lagha, Sabri Beldi and Lasaad Latrach*; MER Laboratory, Faculty of Sciences of Tunis, University of Tunis El Manar, Tunisia; Nanomisen Laboratory, Technology park CRMN, Sousse, Tunisia.
- 18:10 - 18:30 **Design and Implementation of Information Centered Protocol for Long Haul SHM Monitoring;** *Hasan Tariq, Farid Touati, Mohammed Abdulla E Al-Hitmi, Damiano Crescini and Adel Ben Manouer*; College of Engineering, Qatar University Doha-Qatar; Brescia University Brescia-Italy, Canadian University of Dubai Dubai-UAE.





Day: Tuesday, April - 30 - 2019

08:00 - 09:00 **Registration**

09:00 - 10:00 **Keynote 2: Industrial invitation papers**
*Session Chairs: Salem Abdennadher, Intel Corporation-USA
Chiheb Rebai, SUPCOM-Tunisia*

09 :00 - 09:30 **How enabling AI at the Edge and running on compact and low power IOT devices**
Speaker: Mr. Mohamed Ben Ahmed (ST Microelectronics, Tunisia)

09:30 - 10:00 **Modern testing in today world**
Speaker: Mrs. Emna Ayadi (Primatec Engineering, Tunisia)

10:00 - 10:30 **Coffee Break**

10:30 - 12:30 **Workshop 2: Risk Storming & Brand your Strategy**
Speaker: Emna Ayadi (Primatec Engineering, TUNISIA)
Session Chair: Hatem Trabelsi, ENIS-Tunisia

10:30 - 12:30

Short oral Session All Scopes

*Session Chairs: Nader Ben Amor, ENIS-Tunisia
Abdennaceur Kachouri, ENIS-Tunisia*

An Efficient Fault Detection Method for Elliptic Curve Scalar Multiplication Montgomery Algorithm ;
*Mouna Bedoui, Belgacem Bouallegue, Belgacem Hamdi and Mohsen Machhout, Electronics and Micro-
Electronics Laboratory (E. µ. E. L), Faculty of Sciences of Monastir, University of Monastir, Monastir-Tunisia;
College of Computer Science, King Khalid University, SaudiArabia, Université de Sousse; Institut Supérieur
des Sciences Appliquées et de Technologie de Sousse, Sousse, Tunisia.*

Design of NAND logicgateusing a Single Molecule Transistor; *Abdelghaffar Nasri, Aimen Boubaker,
Wassim Khaldi and Adel Kalboussi, Microelectronics and Instrumentation Laboratory, Faculty of Science of
Monastir, Monastir, Tunisia.*

Design and Implementation of a Pipelined Median Filter Architecture; *Amira Hadj Fredj and Jihene Malek,
Electronics and Micro-Electronics Laboratory, Faculty of Sciences, Monastir, University of Monastir-Tunisia;
Higher Institute of Applied Science and Technology of Sousse, University of Sousse-Tunisia.*





Discrete Cosine Transform Space for Hiding Patient Information in the Medical Images; *Mohamed Ali Hajjaji, Mohamed Gafsi and Abdellatif Mtibaa*, Electronics and Micro-Electronics Laboratory, Faculty of Sciences, Monastir, University of Monastir-Tunisia

A fully automated intelligent system for vehicle storage and parking management; *Abdenmour Najmeddine and Tarek Frikha, ENET'COM-Tunisia*; CES-Laboratory, National Engineering School of Sfax, University of Sfax, Sfax-Tunisia.

A Pipelined Energy-efficient Hardware Accelaration for Deep Convolutional Neural Networks; *Hmidi Alaeddine and Malek Jihene*; Electronics and Micro-Electronics Laboratory, Faculty of Sciences, Monastir University, Monastir-Tunisia; Higher Institute of Applied Sciences and Technology Sousse University, Sousse, Tunisia

Alzheimer's detection through the association of neuro imaging neuropsychological and clinical data; *Zouhour Maâtar, Chokri Abdelmoula and Mohamed Masmoudi*; METS Research Group-National Engineers School of Sfax, Tunisia

Performances Comparison of Nature-Inspired Metaheuristic in Optimal Sizing of Analog Circuit; *Mouna Kotti, Mourad Fakhfakh, Bachir Benhala and Hanaa Hachimi*, University of Gabes, Tunisia; University of Sfax-Tunisia; University of Moulay Ismail, Faculty of Sciences, Meknes, Morocco; ENSA, Ibn Tofail University, Kenitra, Morocco

Study on wake-up receiver designs for IoT applications; *Mariem Bouraoui, Imen Barraaj and Mohamed Masmoudi*; METS Research Group-National Engineers School of Sfax, Tunisia

Development of an organic resistive-type humidity sensor ; *Tarek Sekrafi, Zouhour Denden, Florin Tudorache, Sorin Tascu, Habib Nasri and Chérif Dridi*, NANOMISENE Lab, CRMN of Technopole of Sousse, Sousse, Tunisia, University of Sousse; High School of Sciences and Technology of Hammam Sousse, Tunisia ; RAMTECH, Science Research Departement, Alexandru Ioan Cuza, University of Iasi, Blvd carol, Romania ; University of Monastir, Laboratory of physico-chemistry of materials, FSM, Tunisia

Smart medical nanotechnology using outlier detection methods; *Aymen Abid, Abdennaceur Kachouri and Mohamed Abid*, CES lab: ENIS, Sfax University, Tunisia, LETI lab: ENIS, Sfax University, Tunisia.

Combining DWT/KLT for Secure Transfer of Color Images; *Mohamed Ali Hajjaji, Adnen Albouchi and Abdellatif Mtibaa*, Université de Monastir, Electronics and Micro-Electronics Laboratory, Faculty of Sciences, Monastir, University of Monastir-Tunisia

Second generation of the optoelectronic visual prosthesis: design and preliminary validation; *Hanan Ben Ayed, Jihène Masmoudi and Mohamed Masmoudi*; METS Research Group-National Engineers School of Sfax, Tunisia





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12:30 - 14:00 **Lunch**

14:30 - 15:30 **Keynote 3:** Broadband, Linear, and High-Efficiency Mm-Wave Power Amplifiers The Unreasonable Quest for "Perfect" 5G Mm-Wave Power Amplifiers and Some Reasonable Solutions.

Speaker: Hua Wang (School of Electrical and Computer Engineering Georgia Institute of Technology)

Session Chairs: *Noureddine Boulejfen, CRMN-Sousse
Brahim Mezghani, ENIS-Tunisia*

15:30 - 23:00 **Social Event**





Day: Wednesday, May- 01- 2019

- 09:00 - 10:00 **Keynote 4: A new approach to design and study smart digital Microsystems.**
Speaker: Abdel Illah El Abed (Quantum and Molecular Photonics Laboratory (LPQM), Normale Sup' Paris-Saclay, University, France.)
Session Chair: Mourad Loulou, ENIS-Tunisia
Hassen Mnif, ENET'Com-Tunisia
- 10:00 - 10:30 **Coffee Break**

10:30 - 12:10

Session 4-1: MEMS Design & Sensors

- Session Chairs: Fabiana Arduini, University of Rome-Italy**
Abdel Illah El Abed, Normale Sup' Paris-Saclay, University - France
- 10:30 - 10:50 **Numerical DFT calculations on electronic, optical and charge transport properties of p-conjugated polymers for OLED application; Rihab Chouk, Manel Bergaoui, Nejmeddine Jaballah and Mohamed Khalfaoui; Faculty of Sciences of Monastir, Tunisia.**
- 10:50 - 11:10 **Dynamic Behaviour and Piezoresistive Analysis of a Single Mass 3-Axis Polymer MEMS Accelerometer; Awate fKhlifi, Brahim Mezghani, Shardul Pandit, Aftab Ahmed, Rajul Patkar, Pradeep Dixit, Maryam Shojaei Baghini and FarèsTounsi ; METS Research Unit-ENIS-Tunisia ;, Indian Institute of Technology Bombay, Mumbai, India**
- 11:10 - 11:30 **Simultaneous Angular and Linear Motion Detection Circuitry for a MEMS 6-DOF Piezoelectric IMU ; Hela Almbrouk, Mohamed Hadj Said, Brahim Mezghani, Fares Tounsi and Yves Bernard ; Monastir University, FSM, Monastir-Tunisia ; METS Research Unit-ENIS-Tunisia ; Monastir University, ISIMM-Tunisia ; GeePs Laboratory, Paris Sud University-France.**
- 11:30 - 11:50 **Morphological Study of PVDF-BaTiO3 Composites Based Humidity Sensors ; Shoab Mallick, Abdul Rehman Habib Ur Rehman, Zubair Ahmad, Farid Touati ; Rana Abdul Shakoor and ShaheenAbdulhafez Sh. Almuhtaseb, Department of Electrical Engineering Qatar University, Doha, Qatar**
- 11:50 - 12:10 **TCs Connectivities Effect Investigation in the LTCC-based Thermo generator for Automotive Waste Heat Recovery ; Nesrine Jaziri, Ayda Boughamoura, Jens Muller, Farès Tounsi, Brahim Mezghani and Ammar Kouki ;National Engineering School of Sousse (ENISO), University of Sousse, Tunisia National Engineering School of Sfax, University of Sfax,Tunisia; University of Monastir, National Engineering School of Monastir, LESTE Research Laboratory , Monastir, Tunisia; Electronics Technology Group, Institute of Micro and Nanotechnologies MacroNano, Technische Universität Ilmenau, Germany; LTCC@ÉTS Laboratory, Montréal-Canada.**





10:30 - 11:10

Invited Paper

- 10:30 - 11:10 **"Screen-printed electrodes as cost-effective and miniaturized analytical tools for environmental and biomedical analyses"**
Speaker: Prof. Fabiana Arduini ; University of Rome "Tor Vergata", Italy
Session Chairs: Manel Ben Romdhan, SUPCOM-Tunisia
Cherif Dridi, CRMN-Tunisia

11:10 - 12:30

Session 4-2: Biomedical Systems Design

- Session Chairs: Manel Ben Romdhan, SUPCOM-Tunisia**
Cherif Dridi, CRMN-Tunisia
- 11:10 - 11:30 **Doppler Radar Architecture for Vital Signal Detection;** *Fatma Kraiem, Mohamed Dhieb, Mongi Lahiani and Hamadi Ghariani;* Information Technologies and Electronics laboratory National School of Engineers of Sfax, University of Sfax Sfax, Tunisia
- 11:30 - 11:50 **Obstructive Sleep Apnea OSA detection through esophageal PressurePes;** *Ghada Ben Salah, Karim Abbes, Chokri Abdelmoula, Mohamed Masmoudi, Mohamed Hédi Abdelmoula and Mohamed Turki;* METS Research Group-National Engineers School of Sfax, Tunisia
- 11:50 - 12:10 **Design of low power discrete time FF sigma delta modulator for biomedical application;** *Dalila Laouej, Houda Daoud, Jihen mallek and Mourad Loulou;* Information Technologies and Electronics Laboratory, ENIS, Tunisia.
- 12:10 - 12:30 **NMR implantable microcoil FEM analysis for numerical brain model ;** *Nasreddine Ben Mansour, Cherif Dridi, Nourdinne Yaakoubi and Latifa Fakri-Bouchet ;* NANOMISENE Lab CRMN Sahloul, Sousse Tunisia; LAUM UMR CNRS Maine University, ENSIM Le Mans, France ; ISA CNRS Villeurbanne, France.
- 12:30 - 13:00 **Closing**

