

Technical Program Summary - IEEE -DTS 2020

Monday June, 08, 2020	08:30-09:00	Opening Session: Prof. Mohamed Masmoudi IEEE DTS Conference Chair Chokri Abdelmoula & Smail Niar: Technical Program Chairs Amel Neifar: Organizing Committee Chair
	09:00-10:40	Session 1: Memristor and Analog ICs (05 oral Presentations)
	10:40-10:45	Coffee Break
	10:45-12:25	Session 2: Systems Design & Technology (05 oral Presentations)
	12:25-14:15	Lunch
	14:15-15:55	Session 3: Systems Testing & Reliability (05 oral Presentations)
	15:55-16:00	Coffee Break
	16:00-17:00	Keynote 1: Topics in Nanopackaging: Organizer: Prof. James E. Morris (Portland State University Portland, Oregon, USA)
Tuesday June, 09, 2020	09:00-10:40	Session 4: MEMS Design & Sensors (05 oral Presentations)
	10:40-10:45	Coffee Break
	10:45-12:25	Session 5: VLSI IoT Devices (05 oral Presentations)
	12:25-14:00	Lunch
	14:00-15:25	Poster session
	15:30-16:30	Keynote 2: Towards Self-Aware Systems-on-Chip Through Intelligent Cross-Layer Coordination; By Prof. Fadi Kurdahi (University of California, Irvine)
	16:30-16:35	Coffee Break
	16:35-17:35	Keynote 3: Recent advances in wireless charging. By Prof. Mohammed Ismail Elnaggar (Wayne State University, USA)
Wednesday June, 10, 2020	09:00-10:40	Special Session 1: NANOMaterials & MicroSystEms for sustaiNable dEvelopment (NANOMISENE) Organiser: Prof. Cherif Dridi , (C.R.M.N, Sousse Tunisia)
	10:40-10:50	Coffee Break
	10:50-12:20	Special Session 2: AI & Security within IoT Organizers: Prof. Abderrazak JEMAI (INSAT Tunis, Tunisia) & Dr. Ihsen ALOUANI (Polytechnic University Hauts-De-France, France)
	12:20-12:45	Closing Session and Best paper announcement

Day: [Monday, June-08-2020](#)

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

Prof. **Mohamed Masmoudi** -IEEE DTS Conference Chair-

Prof. **Chokri Abdelmoula** -Technical Program Chair-

Prof. **Smail Niar** -Technical Program Chair-

Prof. **Amel Neifar** -Organizing Committee Chair-

09:00-10:40 **Session 1:** Memristor and Analog ICs.

Session 1 Chair: Prof. **Mohamed Abid** (ENIS, Tunisia)

Time presentation	Paper details
09h00- 09h20	Design and properties of Logic circuits based on Memristor devices; Khaoula MBAREK, Faten OUAJA RZIGA, Sami GHEDIRA and Kamel BESBES; Microelectronics & Instrumentation Laboratory Department of Physics University of Monastir-Monastir, Tunisia, Centre for Research on Microelectronics & Nanotechnology Sousse Technology Park
09h20-09h40	Design and Analysis of Nonvolatile Memristor-based S-R Latch; Khaoula MBAREK, Faten OUAJA RZIGA, Sami GHEDIRA and Kamel BESBES; Microelectronics & Instrumentation Laboratory Department of Physics University of Monastir-Monastir, Tunisia, Centre for Research on Microelectronics & Nanotechnology Sousse Technology Park
09h40-10h00	An efficient Multi-Objective Simulation-based Approach for Low Voltage Low Power Analog ICs ; Abdelaziz Lberni, Amin Sallem, Malika Alami Marktani, Abdelaziz Ahaitouf, Nouri Masmoudi and Ali Ahaitouf ; USMBA University SIGER Laboratory FST, Fez, Morocco ; Sfax University LETI Laboratory ISGI, Sfax, Tunisia ; USMBA University SIGER Laboratory ENSA, Fez, Morocco ; USMBA University SI Laboratory FP, Taza, Morocco
10h00-10h20	A Kriging Surrogate Modeling to the Sensitivity Analysis of Analog Circuits; Omayya Bellaaj Kchaou, Mouna Kotti, Amel Garbaya and Mourad Fakhfakh ; University of Gabes, Tunisia ; University of Sfax, Tunisia
10h20-10h40	Digital Memristor emulator based on threshold adaptive model; Mariem Bouraoui, Imen Barraï, Karim Abbes and Mohamed Masmoudi ; METS Research Group, National Engineers School of Sfax ,BP 1173, 3038 Sfax, Tunisia

10:40-10:45 Coffee Break

10:45- 12:25 **Session 2: Systems Design & Technology**

Session 2 Chair: Prof. **Mourad Fakhfakh** (ENET'Com, Tunisia)

Time presentation	Paper details
10h45-11h05	Reliable 3D 1D1R-1R1D Solution for Victim Layers in Monolithic RRAM Integration; <i>K. Lahbacha, F.Zayer, W. Dghais, A. Maffucci and H. Belgacem</i> ; Laboratory of Elec. and Microelec. Univ. of Monastir, Monastir, Tunisia; Dep. of Electrical and Information Eng. Univ. of Cassino and Southern Lazio Cassino, Italy; Higher Inst. of Applied Science and Technology of Sousse, University of Sousse, Sousse, Tunisia; INFN, Institute for Nuclear Physics Frascati, Italy
11h05-11h25	Spin Connection Topology and Multi-Bit Spin Interaction Coefficients of Ising Spin Model with Digital Logic Gates; <i>T. Miki, M. Shimada and J. Shirakashi</i>
11h25-11h45	Instruction-level Reliability Improvement for Embedded Systems; Akan Tekgul and Ozcan Ozturk, Bilkent University Turkey
11h45-12h05	Interferences'effect for cached-enabled D2D networks with mobility and unequal file-size; <i>Chedia Jarray, Engineering National School of Gabes</i>
12h05-12h25	Study of a Single-Photon Avalanche Diode Models ; <i>Hatem Dhouib, Amel Neifar, Abdessattar Bouzid and Mohamed Masmoudi</i> ; University of Sfax, National Engineering School of Sfax, METS Research Group, Sfax, Tunisia ; Center for Research on Microelectronics & Nanotechnology (CRMN) ; Electrical Engineering Department, Faculty of Engineering and Islamic Architecture, Umm Al-Qura University, Makkah, Kingdom of Saudi Arabia

12:25-14:15 Lunch

14:15-15:55 **Session 3: Systems Testing & Reliability**

Session 3 Chair: Prof **Hatem Trabelsi** (ENIS, Tunisia)

Time presentation	Paper details
14h15-14h35	Why Defect based Testing Works for High Speed I/O Interfaces ; Salem Abdennadher and Anne Meixner ; Intel Corporation, The Engineers' Daughter LLC
14h35-14h55	A 108-dB DR 103-dB SNR Delay-Time Chopper Stabilization Audio CT $\Delta\Sigma$ Modulator ; Jamel Nebhen, Pietro Maris Ferreira, Sofiene Mansouri and Mohamed Masmoudi ; Prince Sattam bin Abdulaziz University, College of Computer Engineering and Sciences, Saudi Arabia.; National Engineering School of Sfax,
14h55-15h15	NB-PLC and RF Characterization for AMI Smart Grid Application In Urban Environment ; Amani Aloui, Ons Ben Rhouma and Chiheb Rebai ; COSIM Research Lab SUP'COM, University of Carthage, Tunisia
15h15-15h35	Optimization and Implementation of a new low phase noise 2.4 GHz differential push-push VCO in a 0.25 μm BICMOS SiGe:C Technology ; Kaouther DJEMEL , Rahma ALOULOU, David CORDEAU, Hassene MNIF ,Jean-Marie PAILLOT and Mourad LOULOU ; Research Laboratory on Electronics and Information Technologies, National Engineering School of Sfax (ENIS), University of Sfax, Tunisia ; Digital Research Centre of Sfax(CRNS),Tunisia ; University of Poitiers – CNRS-XLIM, UMR 7252, Angoulême, France
15h35-15h55	Low-complexity passive mixer-based UWB pulse generator with leakage compensation and spectrum Tunability ; SAIF Benali and HATEM Trabelsi ; University of Gabes, Tunisia ; University of Sfax, Tunisia, METS research Group, National Engineering School of Sfax, Tunisia.

15:55-16:00 Coffee Break

16:00-17:00 **Keynote 1:** Topics in Nanopackaging

Organizer: Prof. **James E. Morris** (University Portland, Oregon, USA)

Session Chair: Prof. Salem Abdennadher (Intel Corporation, USA)

Day: Tuesday, June-09-2020

09:00 - 10:40 **Session 4:** MEMS Design & Sensors

Session 4 Chair: Prof **Hassene Mnif** (ENET'Com, Tunisia)

Time presentation	Paper details
09h00-09h20	BrainSeg3D to Detect Multiple Sclerosis Lesions Using Magnetic Resonance Imaging; <i>Dalenda Bouzidi, Fahmi Ghozzi, Khaled Taouil and Ahmed Fakhfakh</i> ; National Engineering School of Sfax (ENIS), University of Sfax, Tunisia, Laboratory of Technology for Smart System (LT2S), Digital Research Center of Sfax (CRNS), Tunisia
09h20-09h40	Ninhydrin-Glycine Schiff base complexes for efficient OLED devices: Modeling and Experimentation ; <i>Rihab Chouk, Chadlia Aguir, Manel Bergaoui, Jean-Pierre Djukic, Chaker Bouzidi and Mohamed Khalfaoui</i> ; Laboratory of Physical Chemistry of Materialsh, Faculty of Sciences of Monastir, University of Monastir Monastir, Tunisia ; Laboratoire de Chimie et Systématique Organométalliques, Institut de Chimie de Strasbourg, CNRS-Universite de Strasbourg
09h40-10h00	A Very Low Power Delta Sigma Modulator Using Optimized Bulk Driven Telescopic OTA for Biomedical Devices; <i>Dalila Laouej, Houda Daoud and Mourad Loulou;</i> Information Technologies and Electronics Laboratory , National Engineering School of Sfax Sfax, Tunisia
10h00-10h20	A Real-time Gradient Aware Multi-Variable Handheld Urban Scale Air Quality Mapping IoT System ; <i>Hasan Tariq, Abderrazak Abdaoui, Farid Touati, Mohammed Abdulla E Al-Hitmi, Damiano Crescini, Adel Ben Manouer</i> ; Department of Electrical Engineering College of Engineering, Qatar University Doha, Qatar ; Brescia University Brescia, Italy ; Canadian University Dubai, Dubai, UAE
10h20-10h40	Experimental and Analytical Dynamic Analysis of Polymer Single-Axis MEMS Accelerometers ; <i>Awatef Khlifi, Brahim Mezghani, Shardul Pandit, Aftab Ahmed, Rajul Patkar, Pradeep Dixit, Maryam Shojaei Baghini</i> ; E.N.I.S University of Sfax Tunisia ; Department of Electrical Engineering, Indian Institute of Technology Bombay, Mumbai, India

10:40-10:45 Coffee Break

10:45-12:25 **Session 5:** VLSI IoT Devices

Session 5 Chair : Prof. **Ahmed Fakhfakh** (ENET'Com, Tunisia)

Time presentation	Paper details
10h45-11h05	SDR Bridge for a Secure Wireless Sensor Network (WSN) ; Salem <i>Hassayoun</i> , Samer <i>Lahouar</i> and Kamel <i>Besbes</i> ; Microelectronics and Instrumentation Laboratory, Faculty of Sciences Monastir, University of Monastir ; Center for Research on Microelectronics and Naotechnology, Sousse Technopole, Tunisia
11h05-11h25	A Virtual Sensor Network for (WSNs): Architecture and Routing ; AJMI <i>Nader</i> , HELALI <i>Abdelhamid</i> , HAFNAOUI <i>Taleb</i> , and MGHAIETH <i>Ridha</i> ; Micro-Optoelectronic and Nanostructures Laboratory, University of Monastir, Tunisia ; LaSTIC Laboratory, Computer Science Department, Batna 2 University, Algeria
11h25-11h45	New conditioning circuit for FDSOI-ISFET sensor ; Gaddour <i>Ahmed</i> , Wael <i>Dghais</i> , Hamdi <i>Belgacem</i> and Mounir <i>Ben Ali</i> ; National Engineering School of Monastir (ENIM). Electronics andMicroelectronics Laboratory, LR99ES30, Faculty of Sciences of Monastir, 5000, University of Monastir, Monastir, Tunisia ; Higher Institute of Applied Sciences and Technology of Sousse (ISSATSo), 4003, University of Sousse, Sousse, Tunisia ; Nanomaterials, Microsystems for Health, Environment and Energy Laboratory, Centre for Research on Microelectronics and Nanotechnology, Sousse 4034, Tunisia.
11h45-12h05	A Novel Reconfigurable Half-Mode SIW Attenuator Based on Graphene ; Aymen <i>Hlali</i> and Hassen <i>Zairi</i> ; Research Laboratory Smart Electricity & ICT, SEICT ; National Engineering School of Carthage, University of Carthage, Tunis, Tunisia
12h05-12h25	A Smart Rig for Calibration of Gas Sensor Nodes: Test and Deployment ; Abderrazak <i>Abdaoui</i> , Farid <i>Touati</i> , Hasan <i>Tariq</i> and Adel <i>Ben Mnouar</i> ; Electrical Engineering Department College of Engineering, Qatar University, Doha, Qatar ; Canadian University Dubai, United Arab Emirates (UAE)

12:25-14:00 Lunch

14:00-15:25 **Poster Session**

Poster Session Chair : Prof. **Brahim Mezghanni** (ENIS Sfax, Tunisia)

Time presentation	Paper details
14h00- 14h05	Design of a Low Input Voltage DC-DC Boost Converter with a Zero Current Detection Circuit for Energy Harvesting Applications; Walid Turki, Rahma Aloulou, Hassene Mnif and Mourad Loulou: ENIS- Sfax, University of Sfax -TUNISIA
14h05-14h10	Ab Initio calculation on Structural and Electronic properties of Zn1-xMgXO in wurtzite phase; Aouacheria Fatima Zohra, Meziani Abdelhakim and Telia Azzedine; UNIVERSITY CONSTANTINE FRERE MENTOURI- Algeria-
14h10-14h15	Design of New Inset Fed Rectangular Microstrip Patch Antenna with Improved Fundamental Parameters; Hichem Chemkha and Afif Belkacem; PSAU –Saudi Arabia-
14h15-14h20	Serial-Serial AES Custom Hardware Interface using NIOS II Processor; Amal Hafsa, FSM –Monastir – University of Monastir - TUNISIA-
14h20-14h25	Tuning Range Comparison Between Different Planar Inductors Layouts on PCB; Sinda Kaziz, Bilel Maamer, Thibault Delhaye, Fares Tounsi, Laurent A Francis and Denis Flandre; <i>FSM –Monastir</i> –University of Monastir - TUNISIA-
14h25-14h30	Development of hearing self-assessment pure tone audiometer; <i>Marwa Gargouri, Mondher Chaoui and Patrice Wira;</i> ENIS- Sfax, University of Sfax –TUNISIA-
14h30-14h35	FPGA-based implementation of the SHA-256 hash algorithm; <i>Manel Kammoun, Manel Elleuchi, Mohamed Abis and Mohammed S. Bensaleh;</i> ENIS- Sfax, University of Sfax –TUNISIA-
14h35-14h40	Epileptic seizure detection using Multivariate Empirical Mode Decomposition and Support Vector Machines; <i>Chahira Mahjoub, Sahbi Chaïbi, Fatma Krikid, Anca Nica, Régine Le Bouquin Jeannès and Abdennaceur Kachouri;</i> ENIS- Sfax, University of Sfax –TUNISIA-
14h40-14h45	Intelligent Warehouse Management System IOT prototype ; <i>Tarek Frikha and Mohamed Dhouioui ;</i> ENIS-TUNISIA CES-lab, University of Sfax

14h45-14h50	Synapse design based on memristor; <i>Mouna Elhamdaoui, Khaoula Mbarek, Sami Ghedira, Faten Rziga Ouaja and Kamel Besbes; FSM –Monastir –University of Monastir - TUNISIA-</i>
14h50-15h25	Discussion

15:30-16:30 **Keynote 2:** Towards Self-Aware Systems-on-Chip Through Intelligent Cross-Layer Coordination

Organizer: Prof. **Fadi Kurdahi** (University of California, Irvine, USA)

Session Chair: Prof. **Smail Niar** (Polytechnic University Hauts, France)

16:30-16:35 Coffee Break

16:35-17:35 **Keynote 3:** Recent advances in wireless charging

Organizer: Prof. **Mohammed Ismail Elnaggar** (Wayne State University, USA)

Session Chair: Prof. **Mourad Loulou** (ENIS, Tunisia))

Day: [Wednesday, June-10-2020](#)

09:00-10:40 **Special Session 1: NANOMaterials & MicroSystEms for sustaiNable dEvelopment (NANOMISENE)**

Organizer : Prof. **Cherif Dridi** (C.R.M.N Sousse, Tunisia)

Paper number	Paper details
Invited Paper 1	“Sustainable inorganic nanomaterials for solar-driven energy & environmental applications”; <i>Dr. Michele Orlandi</i> ; (University of Trento, Physics Department, IdEA Laboratory –Trento, Italy)
Invited Paper 2	“Supercapacitor Applications of Nanocomposite Materials”; <i>Prof. Dr. Murat ATES</i> , Tekirdag Namik Kemal, University, Chemistry Department, Faculty of Arts and Sciences, Suleymanpasa, Tekirdag, TURKEY)
	“The energy storage in supercapacitor devices: impact of the electrode/electrolyte interface”; <i>Ouassim Ghodbane</i> (National Institute of Scientific Research and Physico-chemical analysis, Tunisia)
	“Porphyrins and Metalloporphyrins: An Overview” <i>Habib Nasri</i> (Faculty of Sciences of Monastir, Tunisia)

10:40-10:50 Coffee Break

10:50- 12:20 **Special Session 2: AI & Security within IoT**

Organizers: Prof. **Abderrazek Jemai** & Dr. **Ihsen Alouani**
(INSAT Tuni, Tunisia) (Polytechnic University Hauts-De-France, France)

Paper details
“A Detailed Survey of Blockchain and Its Applications” <i>El Mamy SIDI BOUBACAR, Hassen Gharbi and Abderrazak Jemai</i> (INSAT Tunis TUNISIA)
“Internet of Things: Emerging Security Challenges and Perspectives” <i>Ihsen Alouani</i> (Polytechnique University Hauts-De-France)
“Embedded Particle Swarm Optimization for smart factory Scheduling (Industries 4.0 era)” ; <i>Rim ZARROUK and Abderrazak JEMAI</i> (INSAT Tunis TUNISIA)
“PDF-Malware: An Overview on Threats, Detection and Evasion Attacks” <i>Nicolas Fleury, Theo Debrunquez and Ihsen Alouani</i> (Polytechnique University Hauts-De-France)

12:20- 12:45

Closing session and best paper announcement