

# **13<sup>th</sup> International School on the Effects of Radiation on Embedded Systems for Space Applications**

**SERESSA 2017 – Munich – Germany**

**DAY 1 - Monday 23<sup>rd</sup> October**

**8:00 Registration**

**9:00 Opening Remarks**

Pascal Fouillat (IMS, France) Raoul Velazco (TIMA, France)

**9:05 Opening Local Chair**

Jaime Estela (Spectrum Aerospace Technologies, Germany)

**9:15 Technical Program Overview**

Otmane Ait Mohamed (Concordia Univ., Canada)

Martin Canales (Spectrum Aerospace Technologies, Germany)

**9:20 Space and Earth Radiation Environments. Key Space Weather Issues in the framework of Nanosatellites**

Marcelo Famá (CEATSA, Argentina)

**10:30 Coffee-Break and Poster Session**

**11:00 Single Event Effects (SEE): Mechanisms and Classifications**

Steve Buchner (NRL, USA)

**12:00 Electrical, Electronic and Electromechanical (EEE) Parts in the New Space Paradigm: *When is Better the Enemy of Good Enough?***

Ken A. LaBel (NASA, USA)

**13:00—14:30 Lunch**

**14:30 Single Event Effects Test Methods**

Konstantin Tapero (TRINITI, Russia)

**15:30 SEE effects on VLSI devices (ASIC and FPGA)**

Luca Sterpone (POLITO, Italy)

**16:30 Coffee break and Poster Session**

**17:00 Accurate Abstraction and High Level Modeling and Validation of SEE in Electronic Systems,**

Otmane Ait Mohamed (Concordia Univ., Canada)

**18:00 End of first day activities**

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**DAY 2 - Tuesday 24<sup>th</sup> October**

**8:00 Registration**

**8:30 COTS in Space: Constraints, Limitations and Disruptive Capability**  
Michel Pignol (CNES, France)

**9:30 Space-COTS: Qualified commercial components for space**  
Jaime Estela (Spectrum Aerospace Technologies)

**10:30 Coffee-break and Poster Session**

**11:00 COTS for Deep Space Missions**  
Hans-Jürgen Sedlmayr (DLR-RM: Institute of Robotics and Mechatronics,  
Germany)

**12:00 Radiation Assurance at the Max Planck Institute for  
Extraterrestrial Physics**  
Dr. Markus Plattner (Max Planck Institute for extraterrestrial Physics,  
Electronics Department, Germany)

**13:00—14:30 Lunch**

**14:30 EMI and Ionizing Radiation Effects on ICs: the need for combined  
tests**  
Fabian Vargas (PUCRS, Brazil)

**15:30 Laser Testing Laser Simulation Test Possibilities and Facilities**  
Pascal Fouillat (IMS, France) and Dale McMorrow (NRL, USA)

**16:30 Coffee-break and Poster Session**

**17:00 Hardening-by-Design Techniques for Analog and Mixed-signals**  
Daniel Loveless (University of Tennessee, USA)

**18:00 End of second day activities**

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**DAY 3 - Wednesday 25<sup>th</sup> October**

**8:00 Registration**

**9:00 Radiation Effects Hardness Assurance**

Steve Buchner (NRL, USA)

**10:00 System Hardening and Real Applications (Part 1)**

Michel Pignol (CNES, France)

**10:30 Coffee-break and Poster Session**

**11:00 System Hardening and Real Applications (Part 2)**

Michel Pignol (CNES, France)

**12:00 Development of a Hardened 150nm Standard Cell library**

João Baptista dos Santos Martins (SMDH / UFSM, Brazil)

**13:00 —14:30 Lunch**

**14:30 Industrial visit to the SuperMUC Petascale System**

**20:00 Gala dinner in Munich**

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**DAY 4 - Thursday 26<sup>th</sup> October**

**8:00 Registration**

**8:30 Microprocessor testing: characterization tests, mitigation**

Heather Quinn (LANL, US)

**9:30 New Developments in FPGA: SEUs and Fail-Safe Strategies from  
the NASA Goddard Perspective**

Melanie Berg (NASA, USA)

**10:30 Coffee break and Poster Session**

**11:00 Mitigating SEU and MBU Using Backward Error Recovery  
Approach in SRAM Based FPGA**

Fakhreddine Ghaffari (ETIS, France)

**12:00 Non-volatile Memories and Their Space Applications**

Alessandro Paccagnella (University of Padova, Italy)

**13:00 —14:30 Lunch**

**14:30 Fault Injection Methodologies**

Luis Entrena (UCIII, Spain)

**15:30 Error-rate Prediction for Programmable Circuits: Methodology,  
Tools and Studied Cases**

Raoul Velazco (TIMA, France)

**16:30 Coffee break and Poster Session**

**17:00 Multi and Many core Processors: Validation by radiation tests of  
Robust applications benefitting of the multiplicity of cores**

Nacer Zergainoh (TIMA, France)

**18:00 Concluding remarks**

Raoul Velazco (TIMA, France) & P. Fouillat (IMS, France)