



Single Event Effects (SEE) Symposium  
 Military & Aerospace Programmable Logic Devices (MAPLD)  
 Combined Workshop



**Monday, May 13, 2024**

Time (PST)	Event
5:00 PM - 8:00 PM	Registration and Welcome Reception at the Soledad Ballroom (First Floor)

**Tuesday, May 14, 2024**

Time (PST)	Session	Title	Speaker	Organization
7:00 AM	Registration in Ballroom Foyer (Second Floor), 7:00AM - 4:00PM Breakfast (Hallway, Salons E-H), 7:00AM			
8:10 AM	Welcome to SEEMAPLD	Workshop Opening Remarks	Adrian Ildefonso	US Naval Research Laboratory
8:20 AM		SEE Technical Program Introduction	Krysten Pfau	Lockheed Martin
8:30 AM	Environments And Facilities	Session Introduction <b>Chair: Athina Varotsou, TRAD</b>		
8:40 AM		Understanding High Energy SEE and Opportunities at Brookhaven National Laboratory	Kevin Brown	Brookhaven National Laboratory
9:00 AM		Status of the K150 Cyclotron Upgrade Project and Radiation Effects User Statistics at Texas A&M University	Henry Clark	Texas A&M University
9:20 AM		Ongoing Developments at the 88-Inch Cyclotron	Janilee Benitez	LBNL
9:40 AM		88-Inch Cyclotron BASE Facility Microbeam Update 2024	Mike Johnson for Alex Donoghue	LBNL
10:00 AM	<b>Break (30 Minutes)</b>			
10:30 AM		The RADHUB Radiation Hardness Assurance Tool Suite	Brian Sierawski	Vanderbilt University
10:50 AM	Tutorials 30 Minutes Each	Development of Space Environmental Effects Digital Laboratory (SEE-D Lab) for the Natural Space Radiation Environment	Kerry Lee	The Aerospace Corporation
11:20 AM		The Proton Radiation Environment in LEO & MEO: an Overview of Variability and Risks	Alex Lozinski	UCLA
11:50 AM	<b>Lunch (1 Hour and 40 Minutes)</b>			
1:30 PM	Education and Workforce Development	Session Introduction <b>Chair: Jeffrey Teng, Georgia Tech</b>		
1:40 PM		LabRaTTS: Laboratory Radiation Test Training Simulator	Brian Sierawski	Vanderbilt University
2:00 PM		NASA Parts Engineering School	Dori Gallagher for Seth Gordon	NASA/JPL
2:20 PM		Texas A&M University Cyclotron Institute Single Event Effects (SEE) Bootcamp Evolution	Gregory Allen Megan Casey	NASA/JPL NASA/GSFC
2:40 PM		Academy for Radiation Effects and Survivability	Justin Likar, Ken LaBel	JHU/APL
3:00 PM	<b>Break (30 Minutes)</b>			
3:30 PM	Emerging SEE Test Alternatives	Session Introduction <b>Chair: Bill Rowe, Raytheon Technologies</b>		
3:40 PM		Neutron Single Events Effects (nSEE) Testing for Microelectronics Resilience in Strategic Environments	Robert Cooper	Naval Surface Warfare Center - Crane
4:00 PM		Criteria for Predicting Heavy-Ion SEE Response Using Surrogate Testing Approaches	Joel Hales	US Naval Research Laboratory
4:20 PM		Screening SEL Susceptibility in COTS Devices Using Pulsed Laser	Jeremy Guillermin	TRAD
4:40 PM		Pulsed Electrons for Alternative Radiation Effects Characterization of Electronics (PEARCE): An Update	George Tzintzarov	The Aerospace Corporation
5:00 PM		An Update on Pulsed X-ray SEE Testing Capability Development	Daniele Monahan	The Aerospace Corporation
5:20 PM		CHALICE: Calculator for Highly Accurate Laser-Induced Carrier Excitation	Adrian Ildefonso	US Naval Research Laboratory
5:40 PM	<b>End of Events for Tuesday, May 14</b>			

## Wednesday, May 15, 2024

Time (PST)	Session	Title	Speaker	Organization
7:00 AM	Registration in Ballroom Foyer (Second Floor), 7:00AM - 4:00PM Breakfast (Hallway, Salons E-H), 7:00AM			
8:00 AM	SEEMAPLD Workshop Announcements			
8:10 AM	SEE Testing and Mitigation	Session Introduction <b>Chair:</b> Lucas Antunes Tambara, Frontgrade Gaisler		
8:20 AM		Use of Bragg Search Testing at TAMU K500 Cyclotron for Determining Overmold Density for Unknown Materials on Sunnyside-Up Parts	Marty Oztenberger for Keri Kuhn	SEAKR Engineering, LLC.
8:40 AM		Comparison of Oscillator Single Event Effects Observed for Heavy Ion and Pulsed Laser Testing	George Ott	Radiation Test Solutions
9:00 AM		Impact of Test Equipment on Single-Event Latchup Susceptibility	Omar Ahmad	Nucleon
9:20 AM		Heavy-Ion SET Response of a Wide-Band Operational Amplifier Fabricated in the SkyWater S90LN 90 nm Process	James Carpenter	Indiana University
9:40 AM		Built-in Self-Test Architecture for Characterization of Single Event Effects in Commercially Available Bulk 90nm Technology	Spencer Westfall	Indiana University
10:00 AM	<b>Break (30 Minutes)</b>			
10:30 AM	<b>Invited Talk</b> 40 Minutes	The Winding Path from SME to Policy Advisor (Remote)	Jonathan Pellish	Self
11:10 AM	FPGA SEE Testing	Session Introduction <b>Chair:</b> Steve Guertin, NASA/JPL		
11:20 AM		SEE Rate Observations and Rate Predictions across Several Generations of AMD-Xilinx FPGAs	Sebastian Sabogal	NASA/GSFC
11:40 AM		Multi-bit Upsets in Space FPGAs	David Lee	Sandia National Labs
12:00 PM	<b>Lunch (1 Hour and 30 Minutes)</b>			
1:30 PM	FPGA SEE Testing	Tales from the Cave: Beam Lessons Learned	Gary Swift	Swift Engineering & Radiation Services
1:50 PM		Testing Versal 1902 ACAP on XRTC Gen-4 SEE Platform	Gary Swift for Hermann Rufenacht	XRTC
2:10 PM		Single Event Upset Characterization of the Versal AI Core dual-core ARM Cortex A72 Application Processor Unit and Deep Learning Processing Unit Using Proton Irradiation	Nelson Hu	MDA Canada
2:30 PM	SEE Simulation and Data Analysis Techniques	Session Introduction <b>Chair:</b> Raul Palomares, Lockheed Martin		
2:40 PM		A Review of Single Event Upset Rate Calculation Methods	Dave Hansen	L3 Harris
3:00 PM	<b>Break (30 Minutes)</b>			
3:30 PM	SEE Simulation and Data Analysis Techniques	VIRAD: A New Method for Combined-Radiation-Environment Integrated Circuit Analysis	Conrad Jensen	Reliable MicroSystems
3:50 PM		Curve Fitting to Non-Saturating SEE Data	Bill Rowe	Raytheon Technologies
4:10 PM		Proposal of a Multi-Scale High Accuracy Engineering approach for Single Event Effects Analysis in Modern Technologies	Jeremy Guillermin	TRAD
4:30 PM	<b>Break (1 Hour)</b>			
5:30 PM	<b>Industrial Exhibits and Reception - (Salons A-D, Second Floor) - 5:30 - 8:00 PM</b> <b>Raffles:</b> 3D PLUS USA, INC.; TopLine; Robust Chip; Renesas; Apogee Semiconductor; Sage Analytical Lab; QuickLogic Corporation			
8:00 PM	<b>End of Events for Wednesday, May 15</b>			

Thursday, May 16, 2024				
Time (PST)	Session	Title	Speaker	Organization
7:00 AM	Registration in Ballroom Foyer (Second Floor), 7:00AM - 4:00PM Breakfast (Hallway, Salons E-H), 7:00AM			
8:00 AM	SEE Simulation and Data Analysis Techniques	Session Introduction <b>Chair: Raul Palomares, Lockheed Martin</b>		
8:10 AM		Hierarchy of Knowledge: SEL Edition	Ray Ladbury	NASA/GSFC
8:30 AM		Systematic Assurance Analysis of Components Radiation Effects on System Performance	Qi Zhang	Vanderbilt University
8:50 AM	Technical Track Intro	Combined/MAPLD Introduction and Technical Program Introduction	Tom Leahy	SiFive
9:00 AM	SEE Case Study	Session Introduction <b>Chair: Jim Tavacoli, Lattice Semiconductor</b>		
9:10 AM		Heavy Ion Induced SEU and MBU Sensitivity of 3D NAND Flash Structures	Jeremy Guillermin	TRAD
9:30 AM		Recent Observations during SEE Testing of Various Memory Products	Helmut Puchner	Infineon Technologies
9:50 AM		Operating System Dependencies on Radiation Reliability in CPU Memory	Seth Roffe	NASA/GSFC
10:10 AM	<b>Break (30 Minutes)</b>			
10:40 AM	SEE Case Study	Novel Protection of Half-Bridges in Space Environments	Alex Billings	Apogee Semiconductor
11:00 AM		An Overview of SEEs in RFIC/MMIC	Jeffrey Teng	Georgia Tech
11:20 AM		Verifying SEFI Requirements for SOCs and Other Complex Devices	Steve Guertin	NASA/JPL
11:40 AM		The Use of Block Rolling Offset during TID Testing for Memory Parts	Marty Oztenberger	SEAKR Engineering LLC
12:00 PM	<b>Lunch (1 Hour and 30 Minutes)</b>			
1:30 PM	Novel Applications Case Study	Session Introduction <b>Chair: Merek Chertkow, The Radiation Team</b>		
1:40 PM		SEE and TID Radiation Test Results for Managed Flash Memory Devices	Ian Troxel	Troxel Aerospace Industries
2:00 PM		Update on Qualification Info on Versal, Plans for VE2302	Ken O'Neill	AMD
2:20 PM		Heavy Ion Testing Results on multi-GB STT-MRAMs	Paul Chopelas	Avalanche Technologies
2:40 PM	<b>Tutorial</b>	Open Standards (30 Minutes)	Tom Leahy	SiFive
3:10 PM	<b>Break (30 Minutes)</b>			
3:40 PM	Novel Applications	Revolutionizing UAV Control: Integrating NLP with Advanced FPGA and FPAAs Technologies for Dynamic Reconfigurability	Mohamed El-Hadedy	Cal Poly Pomona
4:00 PM	Case Study	Advanced Node FPGAs for Edge Processing	Jim Tavacoli	Lattice Semiconductor
4:20 PM	<b>Break (40 Minutes)</b>			
<b>Poster Session &amp; Career Networking Happy Hour Soledad Ballroom (First Floor) 5:00 PM - 8:00 PM</b>				
5:00 PM To 8:00 PM	What's New in the Domestic Proton Access for SEE (>200 MeV Prime)		Ken LaBel	SSAI/GSFC
	Radiation Characterization of the COTS MyriadX Edge Vision Processing Unit and Use Case in Space Applications		Lucas Tambara	Gaisler
	Recently Updated MIL-PRF-38535 Spec Embraces Plastic Packaging for Next Generation ICs		Kurt Eckles	Texas Instruments
	SEE Results of Radiation Tolerant MOSFETs		Oscar Mansilla	Infineon Technologies
	Radiation Hardness Assurance of the 3D PLUS Monitoring CAMERA (MCAM) System in the Frame of MSR-ERO Mission		Ameur Sellai	3D PLUS
	Harnessing Machine Learning: Parallel Testing and Real-Time Analysis for Accelerated Radiation Effects Dataset Generation		Trevor Peyton	Indiana University
8:00 PM	<b>End of Events for Thursday, May 16</b>			

Friday, May 17, 2024				
Time (PST)	Session	Title	Speaker	Organization
7:00 AM	Registration in Ballroom Foyer (Second Floor), 7:00AM - 10:00AM Breakfast (Hallway, Salons E-H), 7:00AM			
8:00 AM	Design, V&V, and Technical Management of FPGAs/SoCs and PLDs	Session Introduction <b>Chair: Yu Kudo, ISPACE</b>		
8:10 AM		Versal-based Space Applications	Thomas Bradshaw	Sandia National Labs
8:30 AM		SDRAM Challenges in Space	Robert Hillman	Power Device Corporation
8:50 AM		Optimize FPGA & SoC Configuration for Speed, Resilience & Adaptability	Paul Chopelas	Avalanche Technologies
9:10 AM		FLASH Memory Challenges in Space	Robert Hillman	Power Device Corporation
9:40 AM		Rad-Hard 16Gb COnfiguration Memory B0ot Manager	Pierre-Eric Berthet	3D PLUS
10:00 AM	<b>Break (30 Minutes)</b>			
10:30 AM	FPGA & SoC Assurance	Session Introduction <b>Chair: Minh Nguyen, Microchip</b>		
10:40 AM		Synplify Debug Solution for Functional Safety and High Reliability in FPGAs	De'Andre Doughty Hoskins	Synopsys
11:00 AM		Optimal SEU Mitigation for FPGA Based Hardware Acceleration of C/C++ Applications	Kamesh Ramani	Siemens EDA
11:20 AM		Next Step in Low Power Space Processing	David Matthes	BAE
11:40 AM	Closing Remarks			
12:00 PM	<b>End of Events for Friday May 17 and End of Workshop</b>			

