



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



SEE / MAPLD 2023

Monday, May 15, 2023

Time Start (PDT)	Length (min)	Session	Title	Speaker(s)	Affiliation
5:00 PM	180	Registration and Welcome Reception 5:00 PM - 8:00 PM			

Tuesday, May 16, 2023

Time Start (PDT)	Length (min)	Session	Title	Speaker(s)	Affiliation
7:00 AM	60	Breakfast 7:00 AM - 8:00 AM			
8:00 AM	10	Workshop Opening Remarks		Daniel Loveless, Matthew Cannon	UT Chattanooga, Sandia National Laboratories
8:10 AM	10	SEE Technical Program Introduction		Adrian Ildefonso	US Naval Research Laboratory
8:20 AM	10	Environments and Facilities Session Intro		Greg Allen	NASA/JPL
8:30 AM	20	Environments and Facilities	SEE Testing at the BNL Tandem Van de Graaff Facility	Dannie Steski	Brookhaven National Laboratory
8:50 AM	20	Environments and Facilities	Operational Modes of the Proposed High Energy Effects Test Facility at Brookhaven National Laboratory	Kevin Brown	Brookhaven National Laboratory
9:10 AM	20	Environments and Facilities	K150 Cyclotron Upgrade Project at Texas A&M University	Henry Clark	Texas A&M University
9:30 AM	30	Environments and Facilities	79-Au Fever 2.0 - The Search for Heavy Ions: Swift, LET-rich and Highly Penetrating	Gerd Datzmann	Datzmann Interact & Innovate
10:00 AM	30	Break			
10:30 AM	20	Environments and Facilities	88-Inch Cyclotron Upgrades for Improved 20 MeV/nucleon Cocktail Beam Delivery	Janilee Benitez	Lawrence Berkeley National Lab
10:50 AM	20	Environments and Facilities	88-Inch Cyclotron Microbeam Update 2023	Alex Donoghue	Lawrence Berkeley National Lab
11:10 AM	20	Environments and Facilities	A Multi-user, Multi-station SEE Test Facility Using Staged CW Accelerators	Carol Johnstone	Radiabeam
11:30 AM	20	Environments and Facilities	FSEE at 1 Year: Correlative Results and Initial User Experiences	Justin Likar	APL
11:50 AM	90	Lunch			
1:20 PM	10	Emerging SEE Test Alternatives Session Intro		Krysten Pfau	Aitech
1:30 PM	20	Emerging SEE Test Alternatives	Application of NRL Pulsed Laser Single Event Effects Beamline to Study GaN and Ga2O3 Material Systems	Ani Khachatrian	US Naval Research Laboratory

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Tuesday, May 16, 2023 (Cont.)

Time Start (PDT)	Length (min)	Session	Title	Speaker(s)	Affiliation
1:50 PM	20	Emerging SEE Test Alternatives	Pulsed Electron Beam for Single-Event Effects Testing	George Tzintzarov	Aerospace Corp
2:10 PM	20	Emerging SEE Test Alternatives	Advanced Sources for Single-Event Effects Radiation Testing (ASSERT)	David Abe	DARPA
2:30 PM	30	Invited Talk	Spot the Differences: Planning and Execution of Pulsed-Laser and Heavy-Ion SEE Experiments	Joel Hales	US Naval Research Laboratory
3:00 PM	30	Break			
3:30 PM	10	SEE Testing and Mitigation Session Intro		Manuel Rivas	Blue Origin
3:40 PM	20	SEE Testing and Mitigation	An Investigation of Electrical Performance and Single-Event Drop-Out of SiGe Microwave Oscillators	Jeffrey Teng	Georgia Institute of Technology
4:00 PM	20	SEE Testing and Mitigation	Decreasing Proton Single Event Effects in CubeSats with Shielding	Donald Thomsen	NASA/LaRC
4:20 PM	20	SEE Testing and Mitigation	Applied SEE Test Data: Modern NAND Flash	Ted Wilcox	NASA/GSFC
4:40 PM	20	SEE Testing and Mitigation	Stuck Bit Testing Road Trip - Developing a Viable Stuck Bit Test Approach	Steven Guertin	NASA/JPL
5:00 PM	20	SEE Testing and Mitigation	Single-Event Test Method for AMD Versal's Network-on-Chip	Sebastian Garcia	Slabs
5:20 PM	End of Events for Tue May 16				

Wednesday, May 17, 2023

Time Start (PDT)	Length (min)	Session	Title	Speaker(s)	Affiliation
7:00 AM	60	Breakfast 7:00 AM - 8:00 AM			
7:30 AM	10	Tutorial Introduction Session Intro		Dave Hansen	Space Micro
7:40 AM	110	Tutorial	A Practical Introduction to Applied Machine Learning for Scientists	George Williams	Smile Identity
9:30 AM	30	Invited Talk	Reaching the Good, and Avoiding the Bad, When Using AI	David Danks	U.C. San Diego
10:00 AM	30	Break			
10:30 AM	30	Tutorial	System-Level Probabilistic Risk Assessment for Single Event Effects	Stephen Lawrence	University of Tennessee at Chattanooga
11:00 AM	10	Education and Workforce Development Session Intro		Jason Osheroff	NASA/GSFC
11:10 AM	20	Education and Workforce Development	Texas A&M University Master's Program in Radiation Effects	Cody Parker	Texas A&M University
11:30AM	20	Education and Workforce Development	Pulsed-Laser Testing as an Educational Tool for SEE Mechanisms and Experiment Execution	Adrian Ildefonso	US Naval Research Laboratory
11:50 AM	90	Lunch			
1:20 PM	20	Education and Workforce Development	Texas A&M University Cyclotron Institute Single Event Effects (SEE) Bootcamp Evolution	Michael Campola	NASA/GSFC
1:40 PM	30	Invited Talk	Microchip RISC-V/FPGA	Tim Morin	Microchip

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Wednesday, May 17, 2023 (Cont.)

Time Start (PDT)	Length (min)	Session	Title	Speaker(s)	Affiliation
2:10 PM	10	SEE Simulation and Data Analysis Techniques Session Intro		Anup Omprakash	Raytheon
2:20 PM	20	SEE Simulation and Data Analysis Techniques	CREME96 vs JPL 91-32 for Space SEE Rate Calculation	William Rowe	Raytheon
2:40 PM	20	SEE Simulation and Data Analysis Techniques	The SIRE2 Toolkit Version 2.0	Wally Westlake	Fifth Gait Technologies
3:00 PM	30	Break			
3:30 PM	20	SEE Simulation and Data Analysis Techniques	Comparison of Figure of Merit Calculations to On-Orbit Data	David Hansen	Space Micro
3:50 PM	20	SEE Simulation and Data Analysis Techniques	Making Sense of SEL: What Do the Data Tell Us?	Ray Ladbury	NASA/GSFC
4:10 PM	20	SEE Simulation and Data Analysis Techniques	Comparison of Analytical and Machine-Learning Techniques for Radiation Effects Analysis	Trevor Peyton	University of Tennessee at Chattanooga
4:30 PM	60	Break			
5:30 PM	150	Industrial Exhibit Reception 5:30 PM - 8:00 PM			
8:00 PM		End of Events for Wednesday May 17			

Thursday, May 18, 2023

Time Start (PDT)	Length (min)	Session	Title	Speaker(s)	Affiliation
7:00 AM	60	Breakfast 7:00 AM - 8:00 AM			
8:00 AM	10	Combined/MAPLD Technical Program Introduction		Paul Armijo	Armijo Innovations LLC
8:10 AM	10	SEE Characterization Case Studies Session Intro		Justin Likar	APL
8:20 AM	20	SEE Characterization Case Studies	Lessons Learned in SEE Proton Characterization and Product Testing	Krysten Pfau	Aitech
8:40 AM	20	SEE Characterization Case Studies	A Quantitative Approach to SEE Mitigation	Jacob Wiltgen	Siemens DISW
9:00 AM	20	SEE Characterization Case Studies	Proving & Improving the Gen4 XRTC Common Test Infrastructure (CTI): Xilinx KU060 In-beam Case Study	Hermann Rufenacht	XRTC
9:20 AM	20	SEE Characterization Case Studies	SERDES and SEL/pNVM Heavy Ion Characterization on Microchip RT PolarFire RTPF500ZT FPGA	Nadia Rezzak	Microchip
9:40 AM	20	SEE Characterization Case Studies	NOEL-V FT and GRSCRUB IP: SEE Characterization of a SoC on Xilinx Kintex UltraScale FPGA	Lucas Antunes Tambara	Frontgrade Gaisler AB
10:00 AM	30	Break			
10:30 AM	20	SEE Characterization Case Studies	Radiation Test Results of Software-based SEFI/SEU Mitigation for GPUs	Ian Troxel	Troxel Aerospace

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Thursday, May 18, 2023 (Cont.)

Time Start (PDT)	Length (min)	Session	Title	Speaker(s)	Affiliation
10:50 AM	20	Panel Discussion: Careers in Aerospace	Moderator	Rebekah Austin	NASA GSFC
			Panelists	Mike Wirthlin	BYU
				Carl Szabo	SSAI, Inc./NASA GSFC
				Mike Tostanoski	Radiation Test Solutions, Inc.
				Zach Diggins	Cyclo Technologies, Inc.
				David Lee	Sandia National Laboratories
11:50 AM	90	Lunch			
1:20 PM	10	AI/ML, Novel Applications and Case Studies Session Intro		Joshua Donckels	Sandia National Laboratories
1:30 PM	20	AI/ML, Novel Applications and Case Studies	Development and Delivery of a Custom Versal Board for Space Applications	Thomas Bradshaw	Sandia National Laboratories
1:50 PM	20	AI/ML, Novel Applications and Case Studies	The Silver Bullet for Design Simplicity & Versatility in Space: In Orbit Firmware Updates, Multiple Mission Images Now a Reality	Paul Chopelas	Avalanche Technology Inc.
2:10 PM	20	AI/ML, Novel Applications and Case Studies	Mnemosyne: a new 3D PLUS 1Gb RHBD Non-Volatile Memory - Design & Application Lessons	Timothee Dargnies	3D Plus USA
2:30 PM	30	AI/ML, Novel Applications and Case Studies	AI inferencing in AMD Versal Adaptive SOCs	Ken O'Neill and Jim Heaton	AMD/Xilinx
3:00 PM	30	Break			
3:30 PM	30	Invited Talk	Is an Onboard Artificial-Intelligence (AI) Approach Suitable for Your Science Application?	Justin Goodwill	NASA/GSFC
4:00 PM	60	Break			
5:00 PM	180	Poster Session & Career Networking Happy Hour 5:00PM - 8:00PM			
Poster Presentations	Single-Event Effects Test Algorithm for Low-Speed Precision SAR ADCs		Jenny Brik	Renesas	
	Taping Out on Time: Tools & Metrics for Success		Erik Jessen	Siemens DISW	
	The Pros and Cons for Accessing Protons for Electronics Testing in the U.S.		Kenneth LaBel	SSAI, Inc./NASA GSFC	
	Proton Single Event Effects for the Frontgrade Technologies UT24C407 CertusTM-NX-RT FPGA		Matthew Von Thun	Frontgrade	
	Single-Event Effects in 3.3 kV SiC Power Devices during Heavy-Ion Irradiation		Arijit Sengupta	Vanderbilt University	
	Deconstructing a Cross-Section vs LET Curve through Classification of Single Event Transients (SETs) using Jensen Shannon Divergence and Ionizing Radiation Effects Spectroscopy (IRES)		James Carpenter	University of Tennessee at Chattanooga	
	OSVVM's Test Reports and Simulator Independent Scripting		Jim Lewis	Synthworks	
	Visualizing Weibull Fitting: A 5-D Problem		Gary Swift	Swift Engineering & Radiation Services	
	Braided Columns - Accelerated life test looks promising		Marty Hart	TopLine	
	Enhancing Capacity and Capability of Single Event Effects (SEE) Heavy Ion Domestic Infrastructure #needmorebeam #heavyions		Cameron Nickle	Missile Defense Agency	
8:00 PM	End of Events for Thursday May 18				

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Friday, May 19, 2023

Time Start (PDT)	Length (min)	Session	Title	Speaker(s)	Affiliation
7:00 AM	60	Breakfast 7:00 AM - 8:00 AM			
8:00 AM	10	Design, Validation and Verification, and Technical Management of FPGAs/SoCs, and PLDs		Alonzo Vera	IDES-TEK
		Session Intro			
8:10 AM	20	Design, V&V, Tech Mgmt FPGAs/SoCs, and PLDs	Synopsys Tools Automate Verification of Microelectronic Designs	Xiaolin Chen	Synopsys
8:30 AM	20	Design, V&V, Tech Mgmt FPGAs/SoCs, and PLDs	SHRECO-HRCT: Self-Healing Reconfigurable High-Throughput Reconfigurable Compact TinyJAMBU Processor for Trusted IoT	Mohamed El-Hadedy	California Polytechnic University
8:50 AM	20	Design, V&V, Tech Mgmt FPGAs/SoCs, and PLDs	High Reliability Toolkit for Safe FPGA Designs	De'Andre Hoskins	Synopsys
9:10 AM	30	Design, V&V, Tech Mgmt FPGAs/SoCs, and PLDs	OSVVM in a Nut Shell: A Quick Overview of VHDL's #1 Verification Methodology	Jim Lewis	SynthWorks Design Inc
9:40 AM	20	Design, V&V, Tech Mgmt FPGAs/SoCs, and PLDs	4X Efficient and Effective Verification	Erik Jessen	Siemens
10:00 AM	30	Break			
10:30 AM	20	Design, V&V, Tech Mgmt FPGAs/SoCs, and PLDs	New 28nm FD-SOI FPGAs: Architecture, Hardening and First Results	David Merodio Codinachs	European Space Agency (ESA)
10:50 AM	20	Design, V&V, Tech Mgmt FPGAs/SoCs, and PLDs	Post-Radiation Fault Analysis of FPGA Designs Using TMR	Mike Wirthlin	BYU
11:10 AM	20	Design, V&V, Tech Mgmt FPGAs/SoCs, and PLDs	Successfully Transitioning to Agile	Erik Jessen	Siemens
11:30 AM	20	Design, V&V, Tech Mgmt FPGAs/SoCs, and PLDs	Validate Fault Tolerant Designs in FPGAs and SoCs	Xiaolin Chen	Synopsys
11:50 AM	10	Wrap up			
12:00 PM		End of Workshop Friday May 19			