

CMSE 2023 PROGRAM BOOK



26th Annual
Components for Military & Space Electronics
Conference & Exhibition

April 25-27th, 2023
Four Points Sheraton (LAX)
Los Angeles, CA

Organized by: TJ Green Associates LLC

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CMSE 2023 Message from the Chair

Message from the Chair....

On behalf of the CMSE Program Committee I would like to personally welcome everyone to this year's 26th annual CMSE Conference and Exhibition. One of the unique aspects of CMSE is our focus on both active and passive components. You will find experts in both fields coming together under one roof to converse and share solutions to common challenges of designing and building reliable hardware for both military and commercial space programs. This year we've placed a special emphasis on component engineering education and we've invited PhD candidates and young professionals to attend at no charge to learn more about this exciting and growing career field.

I'd like to personally thank our sponsors and exhibitors for supporting CMSE and everyone on our CMSE planning committee. So pay attention, take the time to listen, ask good questions and don't hesitate to respectfully challenge each other's ideas and technical opinions.

Welcome to CMSE 2023!



Thomas Green
CMSE Program Chair



PROGRAM COMMITTEE

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Christine Michienzi, Ph.D.

Senior Technology Advisor to the
Undersecretary of Defense for Acquisition & Sustainment

Dr. Christine (Chris) Michienzi is a Scientific Professional (ST) in the Office of the Secretary of Defense. She is the Chief Technology Officer for the Assistant Secretary of Defense (ASD) for Industrial Base Policy and for the Undersecretary of Defense (USD) for Acquisition and Sustainment. She provides technical expertise and strategic and policy guidance to the ASD and USD on critical defense industrial base issues and mitigations in acquisition and sustainment technology areas such as critical chemicals, hypersonics, microelectronics, and strategic systems.

Prior to her current assignment, Dr. Michienzi served as the Missiles and Munitions Industrial Analyst and then Director of Industrial Base Assessments in Industrial Policy - leading a team of industrial analysts responsible for assessing the capabilities, health, and resiliency of the industrial base on which the Department relies for current and future warfighting capabilities. She and her team developed mitigations to address identified industrial base risks and issues in all industrial sectors, leading to enhanced Department readiness.

James W. Wade, Ph.D. Engineering and Mission Assurance Executive



Dr. James W. Wade has extensive experience in the aerospace and defense industry, spanning roles in government, federal research & development, education, and industry. Most recently he was the corporate vice president for Quality & Compliance at Raytheon Technologies. He collaborated with leadership in the areas of quality & mission assurance, engineering, supply chain, operations, and program management to deliver products and services that contributed to the customers' mission success. He joined the Raytheon Company in 2010 as vice president of Mission Assurance leading end-to-end Mission Assurance, Quality, Supplier Quality, and Continuous Improvement across the enterprise.

From 2006 to 2010, Jim was head of the MIT Lincoln Laboratory Safety and Mission Assurance Office, where he enhanced their system and component development capabilities in project hardware, software, integration and quality. He established the Laboratory's first Mission Assurance capability, which included the implementation of a quality management system compliant with the AS9100 industry standard.

For full bio's visit www.tjgreenllc.com/cmse



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2023 TUTORIAL SCHEDULE

TUESDAY, APRIL 25

FULL DAY SESSIONS (0800-1600)

TITLE

OPTION #1
MICROELECTRONIC COMPONENT
ENGINEERING FOR THE 2020s

INSTRUCTORS

Ron Demcko *Kyocera/AVX*
Dr. Yuri Freeman *YAGEO Group*
Trevor Devaney *Hi-Rel Laboratories*
Thomas J Green *TJ Green Associates*

OPTION #2

MICROELECTRONIC PACKAGING:
FUNDAMENTALS & OPPORTUNITIES

Mark D. Poliks & Benson Chan
Center for Advanced Microelectronics
Manufacturing (CAMM)
Integrated Electronics & Engineering
Center (IEEC)
State University of NY at Binghamton

EVENING SESSION (1630-1900)

TITLE

UNDERSTANDING THE MILITARY
STANDARDS & UPDATE ON JEDEC
& NEW SPEC INITIATIVES

INSTRUCTORS

Lawrence Harzstark *Aerospace Corp*
Sultan Lilani *Integra Technologies*
Shri Agarwal *NASA Jet Propulsion Lab*
Rod De Leon *Boeing Corporation*

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<p>Qualified Military and Space Supplier</p>				<p>MIL-PRF-123, -49464, -49467, -49470, -55681, -32535 MIL-STD-202 and MIL-STD-790</p>
<p>CERAMIC CHIPS 0201 to 2225</p> 	<p>SMPS STACKS MIL-PRF-49470</p> 	<p>WIREBONDABLE SINGLE LAYER</p> 	<p>CUSTOM STACKED CUSTOM ASSEMBLY</p> 	

2023 PRESENTATION SCHEDULE

Wednesday, April 26

0800-0815	Welcome Intro CMSE General Chair	Thomas J Green TJ Green Associates
Session #1A : Passive Components for Military and H Rel Space Systems Session Chair: Daniel West (Kyocera/AVX)		
0815-0840	Derating and Technology in Polymer Tantalum Capacitors	Yuri Freeman & P. Lessner Yageo Group
0840-0905	Derating Tantalum Capacitors Depends on the Cathode System	Jon Rhan & Jerard Jose Vishay
0905-0930	The Next Decade Capacitor Requirements from Automotive to Space Environments	Tomas Zednick Ph.D. EPCI
0930-0955	ESA Recent Challenges in Space Missions: Cracked Capacitors' Time Bomb and Forbidden Solderless Connectors	Léo Farhat ESA
0955-1020	COFFEE BREAK	
1020-1045	A Simplified Approach to Choosing a DC Blocking Capacitor	Brian Ward Vishay
1045-1110	Effect of Defect Dynamics on Reliability of X7R Multilayer Ceramic Capacitors	Pedram Yousefian Penn State
1110-1200	KEYNOTE (LIVE STREAM): DOD AND THE CHIPS ACT – ENSURING NATIONAL SECURITY REQUIREMENTS ARE PART OF THE IMPLEMENTATION Dr. Christine (Chris) Michienzi Senior Technology Advisor to the Undersecretary of Defense for Acquisition & Sustainment	
1200-1355	LUNCH in the Exhibits Area SPONSORED BY RESILINC	
1355-1420	Building Resilience Into Your Supply Chain	Peter Guinto Resilinc
1420-1445	Challenges with the CHIPS Act	Sultan Lilani Integra Technologies
Session #1B : Design Alternatives for Military and Space Electronics Session Chair: Tomas Zednick (EPCI)		
1445-1510	Designing and Application Considerations for Space Grade Ferrite Beads	Scott Harris Vanguard
1510-1535	Ultracapacitors- Operate in Environments Beyond Battery Capabilities	Mitch Koffel Nanoramics

1535-1550	COFFEE BREAK	
1550-1615	New Products Offerings for Military and Spacecraft Electronics with various screening and QCI options	Richard Duong Q-tech
1615-1640	Compact and Reliable Transformer with Integrated Inductor	Victor W. Quinn Exxela
1640-1705	Copper Braided Solder Columns – Extending Life in Space Applications	Marty Hart Topline Corporation
1705-1730	Legacy Program Engineering Stock Validation and Counterfeit Inspection	Aaron Demarderosian Raytheon Technologies
1730-2000	WELCOME RECEPTION in the Exhibits Area	

TEACHING AND CONSULTING SERVICES

Classes available *virtually* or *in person* at your facility.
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Our most popular class is Pre Cap Visual inspection per TM 2017 for Hybrids and RF microwave modules and if you like that check out some of our other training seminars on topics such as Wirebonding, Failure Analysis, Hermetic and non-hermetic packaging, Space and Mil standards, microwave packaging technology and more...

2023 PRESENTATION SCHEDULE

Thursday, April 27

KEYNOTE: STRIKING A BALANCE BETWEEN COMPLIANCE AND RISK		
James W. Wade, Ph.D. Engineering and Mission Assurance Executive		
Session # 2A: Advanced Packaging for Microwave and High Density Interconnects Session Chair: Sultan Lilani (Integra Technologies)		
0800-0835	Advanced Packaging: Critical Ecosystem and Reliability Considerations	Kaysar Rahim Northrop Grumman Corporation
0835-0900	Thermal Analysis of Die Attach Materials for a High Power GaN Device	Casey Krawiec StratEdge
0900-0925	The Evolution of Moore's Law Through Chipletized Architectures	Tony Trinh, Thomas Smelker, Trevor Ashby, Jennifer Keenan Mercury Systems
0925-0950	Effective Advanced Heat Spreading Thermal Solutions For GaN Devices	Bill Ishii Sumitomo Electric
COFFEE BREAK		
1015-1040		
1040-1105	An Integrated Workflow for Semiconductor Package Design	Andras Vasa-Varnai, Albert Proszak, Jimmy He Siemens
1105-1130	New GaN Power Products for Avionics, Defense & Space	Roger Roisen Teledyne
1130-1155	TGV Cu Metallisation on Glass Technology for Avionics Application	Tetsuya Onishi, Masatoshi Takayama Koto Electric Co., Ltd.
1155-1220	Advanced Packaging for Government Needs	Julian Warchall, Ph.D., Saverio Fazzari Booz Allen Hamilton
LUNCH in the Exhibits Area		
Session #2B : Quality and Reliability Considerations for Microcircuits Used in Harsh Environments Session Chair: Larry Harzark (Aerospace Corp)		
1345-1410	PWB Delamination Defects on Overhaul & Repair (OIR) Assemblies. Analysis and Variances to J-STD-001H & IPC-A-610	Aaron Demarderosian Raytheon Technologies
1410-1435	Supply Chain Quality Challenges	Zac Elliott, Asaf Jivlik Siemens, Cybord
1435-1500	Non-Hermetic Inherently Robust Film Capacitor Designs for Embedded Power Applications in Military and Space Electronics	Zach Kilsmith Quantic Paktron

1500-1525	Ceramic and Metal Repackaging of Plastic Encapsulated Microcircuits for Hermetic Solutions	Erick M. Spory, Ph.D. Global Circuit Innovations
1525-1550	Recent Advances in Microcircuit Standards	Shri Agarwal NASA JPL
COFFEE BREAK		
1550-1555		
1555-1620	Connector Upscreening for Space Applications	Ted Bartlett Integra Technologies
1620-1645	Efficient DC Voltage Conversion Without Switching – A Path to Extremely Compact and Low-Noise DC Voltage Regulators	Matthew Lumb Polaris Semiconductor LLC
1645-1710	Enhancing Microelectronic Package Reliability Through Getter Material Integration & Inner Gas Atmosphere Characterization	Luca Mauri, Giovanni Zafarana, Enea Pizzi, Alessio Corazza SAES
1710-1730	Novel Waffle Pack Lid Clip System Shows Promise in Mitigating Costly Thin Die Migration	Darby Davis, Gel-Pak Craig Blanchette, BAE Systems



JOHN R. DEVANEY AWARD FOR BEST PRESENTATION

The CMSE Program Committee Will Award A \$1,500 Cash Prize In Honor Of John R. Devaney For Best Presentation At The Conference

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EXHIBITORS



2023 EXHIBIT FLOOR LAYOUT

T# = table top
30" X 6"
Shown as 7" 1 ft space between

T#

B# = Booth

B# = Booth

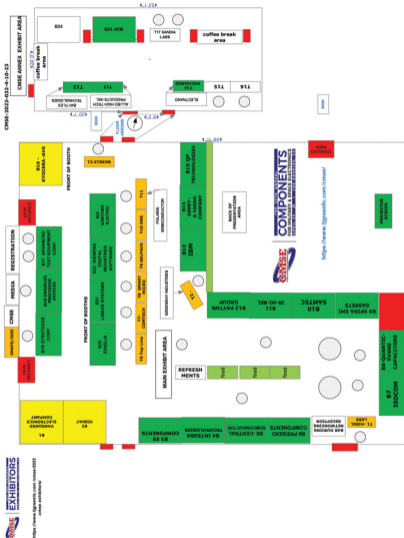
Booth
10' wide by 6'
deep

B
10' x 10'

TO LEARN MORE ABOUT
THESE EXHIBITORS
SCAN QR CODE BELOW



CMSE MAIN EXHIBIT AREA		
ASSIGNED	BOOTH/TABLETOP	EXHIBITOR
B17	BOOTH	Advanced Test Equipment Corp.
B5	BOOTH	Central Semiconductor
T7	TABLETOP	COMTECH SPACE COMPONENTS
B3	BOOTH	ES COMPONENTS
B20	BOOTH	EXXELIA
T9	TABLETOP	GELPAK
T2	TABLETOP	GREENRAY INDUSTRIES
T1	TABLETOP	HI-REL LABS
B13	BOOTH	IBM CANADA
B4	BOOTH	Integra Technologies
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B7	BOOTH	ISOCOM-UK
B18	BOOTH	KNOWLES
B16	BOOTH	KYOCERA AVX
B21	BOOTH	Linear Integrated Systems
T10	TABLETOP	ONEIDA RESEARCH
B12	BOOTH	Payton
T11	TABLETOP	Polaris Semiconductor LLC
B6	BOOTH	Presidio Components
B15	BOOTH	QP TECHNOLOGIES
B8	BOOTH	Quantic Evans Capacitors
B10	BOOTH	SAMTEC
B22	BOOTH	SIEMENS
T8	TABLETOP	SMART MICROSYSTEMS
B9	BOOTH	SPIRA-EMI
B19	BOOTH	STRATEGDE
B23	BOOTH	SUMITOMO
T6	TABLETOP	TOPLINE CORPORATION
B1	BOOTH	Vanguard
B2	BOOTH	VISHAY
T3	TABLETOP	XTREME Semiconductor
B14	BOOTH	YAGEO Group-KEMET
ANNEX EXHIBIT AREA		
B25	BOOTH	AEM
T13	TABLETOP	ALLIED HIGH TECH PRODUCTS INC.
T12	TABLETOP	BAYFLEX
T14	TABLETOP	ELECNANO-MECHANO
T17	TABLETOP	SANDIA NATIONAL LABS



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