CMSE 2025 PROGRAM BOOK



28th Annual Components for Military & Space Electronics Conference & Exhibition

April 29th - May 1st, 2025

Renaissance Hotel LAX 9620 Airport Blvd Los Angeles, CA 90045

CMSE 2025 Message from the Chair

On behalf of the CMSE Program Committee I would like to personally welcome everyone to this year's 28th 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 continue our focus on education with a new class on the design and test on "Non-Hermetic" microelectronics for military and space.

On Wednesday we start off with several talks on the impact of Al in our community then we will hear about advances in next generation packaging technologies along with what's new in the world of capacitors. Thursday, we continue the learning with a special 1 hour Primer on the newly released Mil-Std-1580 DPA for EEE Parts.

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 2025!

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Thomas Green CMSE Program Chair



Program Committee

Tom Green General Chair

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2025 KEYNOTE SPEAKERS



GRUMMAN

Louise Sengupta, Ph.D.

Director of Business Development, Northrop Grumman

Dr. Louise Sengupta is currently the Director of Business Development and Capture for Northrop Grumman Microelectronics Center (NGMC) that includes both Mission Systems and Space Systems sectors. She is responsible for growing the business and creating the go to market strategy for all new business in microelectronics across all services and across the company.

From 2018 to 2022 she was the Director of Advanced Electronics at Northrop Grumman Mission Systems and has >30 years of experience leading businesses and technology in microelectronics and is an expert in advanced sensing and advanced materials fabrication. She joined Northrop Grumman

in 2015 and expanded the work in digital AESAs, trusted electronics, advanced imaging and advanced processors.

Prior to this, from 01/2006 to 07/2015, she was the Director of Advanced Sensors, for BAE Systems – Columbia, MD and served as an Engineering Fellow for BAE Systems and was the first woman to be elected to this position.

From 05/1998 to 01/2006, Dr. Sengupta founded and served as CEO/CTO of Paratek Microwave that was acquired by Blackberry RF in 2011. Paratek's product lines included phased array antennas and tunable RF components. The technology was based on intellectual property that she invented while at ARL (Army Research Laboratory) from 05/1991 to 05/1998.



Larry Harzstark Technical Fellow, The Aerospace Corporation

Larry Harzstark is currently a Technical Fellow for Aerospace Corporation and he has over 35 years of experience in parts and component management- related engineering areas. He has been involved in all aspects of component engineering from the design of custom radiation-hardened devices to meet strategic missile requirements, to failure analysis, parts selection, design reviews, supplier audits, technology reviews and parts control boards. Recently, Larry has been involved in aspects of Commercial Off the Shelf (COTS), as well as Plastic Encapsulated Microcircuits (PEMs) and their utilization in military systems. He developed the guidelines for use of PEMs in an Army missile system and in space applications. His extensive expertise and knowledge in the field of microelectronics has earned him a

reputation as a problem solver. Larry currently is an Aerospace Fellow responsible for technical aspects of new technology insertion, PMP management, evaluations of alternative technologies and problem resolution for programs. He earned his BSEE from the Polytechnic Institute of Brooklyn in 1969, and his MSEE from Clarkson College of Technology in 1970



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2025 TUTORIAL SCHEDULE

TUESDAY, APRIL 29

0700-0900	Registration and Student Breakfast Sponsored by All Tech Electronics				
TUTORIAL #1 LOCATION: Malibu Room					
0800-1530	Microelectronic Component Engineering Principles and Practices	Instructors: Thomas J Green (TJ Green Associates) Ron Demcko (Kyocera/AVX) Trevor Devaney (Hi-Rel Labs) Brian Ward (Vishay)			
TUTORIAL #2 LOCATION: Venice Room					
0800-1530	Design and Test of Non-Hermetic Microelectronics for Military and Space	Instructors: Thomas J Green (TJ Green Associates) Jeff Gotro, Ph.D. (InnoCentrix)			
1200-1300	STUDENT LUNCH: In Renaissance IV Sponsored by All Tech Electronics (For those attending tutorial classes only)				
TUTORIAL #3 LOCATION: International Ballroom					
1600-1730	Understanding Military Standards and Update on JEDEC and New Spec Initiatives	Instructors: Lawrence Harzstark (Aerospace) Sultan Lilani (Integra) Shri Agarwal (NASA JPL)			

Student & Professional Networking Event

Location: Malibu Room Time: 1730-1900

(Join us for drinks and light snacks)

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2025 PRESENTATION SCHEDULE

WEDNESDAY, APRIL 30

0700	REGISTRATION & COFFEE			
0800-0815	Welcome To CMSE 2025 Introduction by General Chair	Thomas J Green TJ Green Associates		
Session 1A Session Chair: Rick Rodriguez (Raytheon RTX)				
0815-0840	Electronic Components Challenges in Al Power Management	Tomas Zednicek EPCI		
0840-0905	COTS and AI Transforming Space Operations	Ralph Grundler Aitech		
0905-0930	Al-Driven Secure Electronics Manufacturing: Detecting Counterfeit and Hardware Tampering	Dr. Eyal Weiss Cybord		
0930-0955	Braided Solder Columns for Next Generation Large Heterogeneous 2.5D Packages	Marty Hart TopLine		
0955-1020	COFFEE BREAK: Sponsored by Kyocera/AVX			
1020-1045	GaN and InP Chiplet Integration in CMOS Wafers for Millimeter-wave Front-ends	Florian Herrault PseudolithIC		
1045-1110	IBM Research - Recent Developments in Advanced Components	Julian Warchall, Ph.D. IBM		
1110-1200	<i>KEYNOTE:</i> Northrop Grumman Microelectronics Center (NGMC) Supports Next Generation Packaging Technologies	Louise Sengupta, Ph.D. Northrop Grumman		
	LUNCH BREAK: Sponsored by Kyocera/AVX			
1200-1355	LUNCH BREAK: Sponsored by Kyocera/AVX			
1200-1355 Session 1E	LUNCH BREAK: Sponsored by Kyocera/AVX Session Cha	ir: Tomas Zednicek (EPCI)		
1200-1355 Session 1E 1355-1420	LUNCH BREAK: Sponsored by Kyocera/AVX Session Cha New MIL PRF Metal Strip Current Sense	ir: Tomas Zednicek (EPCI) Brian Yarborough Vishay Dale		
1200-1355 Session 18 1355-1420 1420-1440	LUNCH BREAK: Sponsored by Kyocera/AVX Session Cha New MIL PRF Metal Strip Current Sense Advanced Technology Microcircuit (ATM) QML Development	ir: Tomas Zednicek (EPCI) Brian Yarborough Vishay Dale Sultan Lilani Integra Technologies		
1200-1355 Session 18 1355-1420 1420-1440 1440-1530	LUNCH BREAK: Sponsored by Kyocera/AVX Session Cha New MIL PRF Metal Strip Current Sense Advanced Technology Microcircuit (ATM) QML Development Overview of Non-Hermetic Advanced Packaging	ir: Tomas Zednicek (EPCI) Brian Yarborough Vishay Dale Sultan Lilani Integra Technologies Jeff Gotro, Ph.D. InnoCentrix		
1200-1355 Session 18 1355-1420 1420-1440 1440-1530 1530-1550	LUNCH BREAK: Sponsored by Kyocera/AVX Session Cha New MIL PRF Metal Strip Current Sense Advanced Technology Microcircuit (ATM) QML Development Overview of Non-Hermetic Advanced Packaging COFFEE BREAK: Sponsored by Kyocera/AVX	ir: Tomas Zednicek (EPCI) Brian Yarborough Vishay Dale Sultan Lilani Integra Technologies Jeff Gotro, Ph.D. InnoCentrix		
1200-1355 Session 18 1355-1420 1420-1440 1440-1530 1530-1550 1550-1615	LUNCH BREAK: Sponsored by Kyocera/AVX Session Cha New MIL PRF Metal Strip Current Sense Advanced Technology Microcircuit (ATM) QML Development Overview of Non-Hermetic Advanced Packaging COFFEE BREAK: Sponsored by Kyocera/AVX Integrated Thin Film Passive Components: A New Option for Miniature Flight Electronics	ir: Tomas Zednicek (EPCI) Brian Yarborough Vishay Dale Sultan Lilani Integra Technologies Jeff Gotro, Ph.D. InnoCentrix Ron Demcko Kyocera/AVX		
1200-1355 Session 18 1355-1420 1420-1440 1440-1530 1530-1550 1550-1615 1615-1640	LUNCH BREAK: Sponsored by Kyocera/AVX Session Cha New MIL PRF Metal Strip Current Sense Advanced Technology Microcircuit (ATM) QML Development Overview of Non-Hermetic Advanced Packaging COFFEE BREAK: Sponsored by Kyocera/AVX Integrated Thin Film Passive Components: A New Option for Miniature Flight Electronics Miniaturization and Performance Improvement of Electronic Systems by Utilizing Embedded Thin-film Resistors and Gap Capacitors	ir: Tomas Zednicek (EPCI) Brian Yarborough Vishay Dale Sultan Lilani Integra Technologies Jeff Gotro, Ph.D. InnoCentrix Ron Demcko Kyocera/AVX John Andresakis Quantic Electronics		
1200-1355 Session 18 1355-1420 1420-1440 1440-1530 1530-1550 1550-1615 1615-1640 1640-1705	LUNCH BREAK: Sponsored by Kyocera/AVX Session Cha New MIL PRF Metal Strip Current Sense Advanced Technology Microcircuit (ATM) QML Development Overview of Non-Hermetic Advanced Packaging COFFEE BREAK: Sponsored by Kyocera/AVX Integrated Thin Film Passive Components: A New Option for Miniature Flight Electronics Miniaturization and Performance Improvement of Electronic Systems by Utilizing Embedded Thin-film Resistors and Gap Capacitors Advanced Reflowable Chip Capacitor for Military and Space Electronics and Embedded Solutions	ir: Tomas Zednicek (EPCI) Brian Yarborough Vishay Dale Sultan Lilani Integra Technologies Jeff Gotro, Ph.D. InnoCentrix Ron Demcko Kyocera/AVX John Andresakis Quantic Electronics Christopher Deane Fastcap		
1200-1355 Session 18 1355-1420 1420-1440 1440-1530 1530-1550 1550-1615 1615-1640 1640-1705 1705-1730	LUNCH BREAK: Sponsored by Kyocera/AVX Session Cha Session Cha New MIL PRF Metal Strip Current Sense Advanced Technology Microcircuit (ATM) QML Development Overview of Non-Hermetic Advanced Packaging COFFEE BREAK: Sponsored by Kyocera/AVX Integrated Thin Film Passive Components: A New Option for Miniature Flight Electronics Miniaturization and Performance Improvement of Electronic Systems by Utilizing Embedded Thin-film Resistors and Gap Capacitors Advanced Reflowable Chip Capacitor for Military and Space Electronics and Embedded Solutions A Common Approach to Characterizing Electronic Components for Demanding Applications	ir: Tomas Zednicek (EPCI) Brian Yarborough Vishay Dale Sultan Lilani Integra Technologies Jeff Gotro, Ph.D. InnoCentrix Ron Demcko Kyocera/AVX John Andresakis Quantic Electronics Christopher Deane Fastcap Brian Ward Vishay Vitramon		



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2025 PRESENTATION SCHEDULE

THURSDAY, MAY 1

0700	REGISTRATION & COFFEE			
Session 2A Session Chair: Brian Ward (Vishay)				
0800-0835	KEYNOTE: Evolution of EEE Parts for Space Missions	Larry Harzstark The Aerospace Corporation		
0835-0900	Benefits of a Hybrid Planar Transformer Package and an Overview of Product Screening Levels	Jackson Sonterre Vishay Inductors		
0900-0925	Advancements of Stacked Capacitors for Military and Flight Applications	Tyler Lagnese Kyocera/AVX		
0925-0950	The First 3-terminal Ceramic Gap Capacitor	Alex Moalemi Quantic Eulex		
0950-1015	Commercialization of GN3 Graphene Material as the Active Electrode for High Energy	Tomas Zednicek EPCI		
1015-1035	COFFEE BREAK: Sponsored by Presidio			
1035-1050	Lessons Learned from Buying Commercial Wafers for MIL Project	Ben Mendoza Golden Altos		
1050-1115	Enhancing Microelectronics Reliability Through Comprehensive Outgassing	Jay Das ORS		
1115-1215	Destructive Physical Analysis (DPA) of Electronic Components – A Primer On MIL-STD-1580 "DPA for EEE Parts"	Sultan Lilani/Trevor Devaney Integra/Hi-Rel Labs		
1215-1330	30 LUNCH BREAK: Sponsored by Presidio			
Session 2	B Session Chair: Tyl	er Lagnese (Kyocera/AVX)		
1330-1355	Addressing the Growing Challenges of Electronic Component Unavailability and Industry Knowledge Loss	Rob Picken Sourceability North America		
1355-1420	Scaling National Security: The SCALE Program's Role in Growing the Nation's Skilled Microelectronics Workforce	Peggy E. Williams, Ph.D. NSWC Crane		
1420-1445	Improved Impedance Measurement Precision Utilizing Innovative Test Fixture Design	J Gasque, W Harrell, K Jenko SKG, Clemson, Universal Avionics		
1445-1510	Why Planar Magnetics are ideal for Harsh Environments	Jim Marinos Payton America		
1510-1535	Tin Whiskers	Jeff Montgomery AEM		
1535-1600	Cu Direct Plating Technology on Quartz Glass for RF Application	Tetsuya Onishi Koto Electric Co.		
1600-1630	John R. Devaney Award for Best Presentation at CMSE \$1,500	Cash Prize		
1530-1550	COFFEE AVAILABLE: Sponsored by Presidio			

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