# WORKSHOP
# Next Generation Microelectronics Manufacturing (NGMM) Phase 0

2023 ERI SUMMIT

## PROGRAM MANAGERS: Dr. Carl McCants; Mr. John Blevins

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| **DATE:** Thursday, August 24, 2023 | **TIME:** 8:30 am – 1:45 pm |
| **ROOM NAME:** Columbia A – 3rd Floor | |

## DESCRIPTION

*As part of DARPA's Electronics Resurgence Initiative (ERI) 2.0, the Next Generation Microelectronics Manufacturing (NGMM) program seeks to transform three-dimensional heteregoneous integration (3DHI) research and development (R&D) by realizing a centralized, domestic capability for the rapid, secure, and cost-effective pilot-line production of 3DHI prototypes composed of multiple material systems. The Phase 0 research effort currently underway focuses on defining the critical fabrication processes and design tools needed to deliver 3DHI microsystems of unprecedented capabilty and performance, as well as considering the intellectual property management structure needed for an open-access NGMM center. In this workshop, performers will present key insights from their analyses to-date in lightning talks.*

## AGENDA

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| **8:30am-8:45am** | NGMM Phase 0 Objectives<br>**Mr. John Blevins, NGMM Program Manager, DARPA** |
| **8:45am-8:55am** | Advanced Manufacturing of 3D Integrated RF Massive MIMO Microsystems with On-Device Computation<br>**Professor Hongbin Yu, School of Electrical, Computer & Energy Engineering**<br>**Arizona State University** |
| **8:55am-9:05am** | Insights for High Density 3DHI Power Stage Microsystems<br>**Mr. Bob Conner, VP of Partnerships, 3D Glass Solutions**<br>**North Carolina State University** |
| **9:05am-9:15am** | Advanced Packaging for 3D Heterogeneous Integrated Circuits<br>**Dr. John Allgair, Chief Technical Officer**<br>**BRIDG** |
| **9:15am-9:25am** | Novel 3D Heterogeneous Stacking Configuration Based on Si Rigid Cored Substrate Platform<br>**Dr. Steven Verhaverbeke, Senior Director**<br>**Applied Materials** |
| **9:25am-9:35am** | Next Generation Microelectronics Manufacturing for Focal Plane Arrays (NGMM FPA)<br>**Ms. Dana Rittermann, Sr. Staff Operations Systems Engineer**<br>**Northrop Grumman Mission Systems** |
| **9:35am-9:45am** | Defining the NGMM NorthStar<br>**Mr. Daniel Klowden, Director of Engineering**<br>**Intel Federal** |
| **Morning Break: 9:45 am-10:15 am** | |

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| **10:15am-10:25am** | Analysis of Heterogeneous Integration Ecosystem for Anticipated 3D Center (AHEAD)<br>**Dr. Daniel Green, Chief Executive Officer**<br>**PseudolithIC** |
| **10:25am-10:35am** | 3DHI Exemplars and IP Management for NGMM<br>**Dr. Donald Sawdai, Microelectronics Sr. Project Manager**<br>**Northrop Grumman Space Systems** |
| **10:35am-10:45am** | 3D Heterogeneous Integration of Phased Array and InfraRed Systems (3D HIPAIRS)<br>**Dr. Hasan Sharifi, RF & EO/IR Subsystems Department Manager**<br>**HRL Laboratories** |
| **10:45am-10:55am** | 3D Heterogeneously Integrated Power Electronic Building Blocks (3D HI-PEBB): A Tool-Kit Approach<br>**Dr. Vivek Mehrotra, Fellow**<br>**Teledyne Scientific & Imaging** |
| **10:55am-11:05am** | 3DHI for Threat Reduction, Innovation, Value, and Efficiency (3DHI THRIVE)<br>**Mr. Jason Milne, Senior Technical Fellow**<br>**Raytheon Company** |
| **11:05am-11:10am** | Morning Session Closing Remarks<br>**Dr. Carl McCants, NGMM Program Manager and ERI Special Assistant, DARPA** |
| **11:10am-11:30am** | Submit questions for afternoon Q&A session |
| **Lunch Break: 11:30am-12:30pm** | |
| **12:30pm-1:30pm** | Q&A<br>**NGMM Government and Performer Teams** |
| **1:30pm – 1:45pm** | Workshop Closing Remarks<br>**Dr. Carl McCants, NGMM Program Manager and ERI Special Assistant, DARPA** |
| **Afternoon Break: 1:45pm-2:15pm** | |
| **Workshop Session Concludes at 2:15 pm** | |