WORKSHOP:

# Future RF Communications – Increased Functional Density for Next Generation RF Sensors

**PROGRAM MANAGER:** Dr. Thomas Kazior, DARPA

**DATE:** Wednesday, August 19, 2020 | **TIME:** 2:15 PM – 5:45 PM

## DESCRIPTION

*To continue performing diverse missions in increasingly crowded electromagnetic (EM) environments, future sensor and communication systems will require increased bandwidth and sensitivity as well as enhanced functionality per unit area. These needs are driving sensor arrays toward 3D solutions, particularly at millimeter wave and THz frequencies. This workshop builds on last year's Heterogeneous Integration (HI) workshop and focuses on the 3D stacking of RF, analog/mixed signal, and digital functions. The workshop features speakers from government, academia, commercial industry, and the defense industrial base. The workshop concludes with a discussion on the unique 3DHI challenges for RF/mixed signal applications and suggestions for potential paths forward.*

## AGENDA

| | |
|---|---|
| **2:15 PM** | ***Workshop Introduction and Overview***<br>Dr. Thomas Kazior, DARPA |
| **2:30 PM** | ***OSD SHIP-RF***<br>Dr. Brian Olson, NSWC Crane, Solid-State Technologies Chief Engineer |
| **2:50 PM** | ***IEEE Heterogeneous Integration Roadmap: Aerospace and Defense***<br>Dr. Jeff Demmin, Keysight Technologies, Heterogeneous Integration Roadmap Aerospace & Defense TWG co-chair |
| **3:10 PM** | ***3D Integration for RF Applications: Materials, Technologies, Performance, Heterogeneous Integration, Mission Environment and Reliability.***<br>Dr. Augusto Gutierrez-Aitken, Northrop Grumman, Northrop Grumman Fellow |
| **3:30 PM** | ***Heterogeneous Integration for mmwave/THz Arrays***<br>Prof. Jim Buckwalter, University of California, Santa Barbara, JUMP ComSenTer Principal Investigator |
| **Afternoon Break: 3:50 PM – 4:05 PM** | |
| **4:05 PM** | ***The Next Dimensions in Heterogeneous Integration; 3D Chiplet and Ecosystems***<br>Dr. Paul Fisher, Intel, Group Leader in Components Research, Emerging Technologies and Advanced Integration<br>Dr. Farhana Sheikh, Intel, Senior Staff Scientist |
| **4:35 PM** | ***Ultra-dense High Speed Digital and Radio Frequency (RF) Electronic System Enablement***<br>Dr. John Allgair, BRIDG, Program Manager - Advanced System Integration |
| **4:55 PM** | ***Thermal Management for Heterogeneous Arrays and Chip Stacks***<br>Dr. Avi Bar Cohen, Raytheon Technologies, Principal Fellow |
| **5:15 PM** | ***3DHI challenges for RF/Mixed Signal Applications: Paths Forward Disucssion***<br>All participants |
| **Virtual Exhibit Hall Office Hours: 5:45 PM – 6:45 PM** | |

## QUESTIONS

Please contact Janet Liu for more information following this workshop at janet.liu.ctr@darpa.mil.