

## Industrial Workshop IW14

### Antenna-in-Package (AiP) / Antenna-in-Module (AiM) Design for Millimeter-Wave Applications (by Cadence)



#### Abstract:

Commercial opportunities for wireless systems, ushered in by 5G, are predicated on the adoption of millimeter-wave spectrum for greater bandwidths, phased array antennas for enhanced spatial efficiency, and multi-fabric module/packaging integration for reduced size and cost of front-end transceivers. Antenna-in-Package (AiP) / Antenna-in-Module (AiM) technologies and front-end integration are necessary to achieve the size, cost and performance goals required by future intelligent wireless systems. Successful development of AiP/AiM technology and integration will rely on multi-domain, multi-physics simulation and electronic design automation within a comprehensive manufacturing flow. This workshop presents a survey of the challenges and design solutions impacting the development of advanced AiP/AiM technologies.

#### Workshop Program (Tuesday, 23 March 2021, 13.10-13.40 h)

This workshop explores recent developments in AiP/AiM technology from the perspective of electromagnetic (EM) simulation, in-situ circuit simulation, phased array synthesis, and multi-fabric module design. The workshop starts with a look at system requirements that drive antenna/front-end architectural decisions for millimeter-wave applications. In addition to antenna/antenna array design and simulation considerations, this talk will examine supporting packaging technology including advanced chip, package, and board interconnects, which are driving the need for high-capacity EM analysis in order to simulate performance across these highly integrated systems.

Attendees will learn how best-in-class RF design, manufacturing, and EM/thermal system signoff, combine to support AiP/AiM development and integration with the IC through the PCB system level from within a comprehensive front-to-back workflow from Cadence. Multiple design examples will be presented.

The workshop will be led by David Vye.

**David Vye** is a Sr. Product Marketing Manager for AWR® products at Cadence, responsible for product messaging, content development, and product introductions of Cadence® RF/microwave design software. Mr. Vye, a former Editor and Business Development manager for Microwave Journal, has held a number of technical and marketing positions throughout the RF/microwave industry including Business Development Manager at ANSYS, Product Marketing Manager with Ansoft Corporation, Sr. Design Engineer at Raytheon Research Division, and MMIC Design Engineer at M/A-COM's Advanced Semiconductor Operations. He is a 1984 graduate of the University of Massachusetts at Dartmouth, with a concentration in microwave engineering.

