

## Scientific Workshop SW01

### Integration challenges for mm-wave phased arrays

#### Abstract:

The continuously growing need for higher data rates and, therefore, more signal bandwidth in wireless applications, drives new applications into the mm-wave frequency domain. This requires medium to large-scale array antenna systems with tens or hundreds of active antenna elements. The fact that RF power generation is distributed over a large number of active antenna elements allows the use of highly-integrated and cost-effective semiconductor technologies. The aim of the workshop is to chart current challenges and discuss what innovations are needed from the point of view of the co-design methodology (e.g. design to build), materials, manufacturing processes and system requirements to make highly-integrated mm-wave phased arrays a competitive technology.

#### Workshop Program (Friday 26 March 2021, 9h-12.40 and 14-16h)

The workshop is being organised as an activity of the EurAAP Working Group on Active Array Antennas. The workshop will consist of four parts. The first two parts will host technical presentations followed each by a short Q&A. Remaining questions will be addressed during the panel discussion. A demo will be given by Huawei between part 1 and part 2:

##### Part 1 (9:00-12:10):

- “Design of advanced mm-wave phased arrays with consideration to manufacturing and thermal design”, Jussi Säily (VTT, Finland)
- “Recent Developments in Spaceborne Integrated Phased Arrays”, Giovanni Toso (ESA, The Netherlands)
- “Integrated Front ends for space active antennas”, Jean Philippe Fraysse (Thales Alenia Space, France)
- ‘Millimeterwave antennas system for 5G/6G: from radio channel modelling to field trials’ Raffaele D’Errico, CEA-LETI, France
- “Active arrays for advanced driver assistance systems”, Marta MARTINEZ, (Renesas Electronics, Germany)

##### Part 2 (12:10-12:40):

- Demo “Dynamic Interference Rejection”, (Renato Lombardi, Huawei, Italy)

##### Break

##### Part 3 (14:00-15:00):

- “Alternatives for Millimeter Wave Beamforming with True Time Delay”, Ruth Rotman, (Elta Syst. Inc., Ashdod, Israel)
- Zoya (Zorana) Popovic, (University of Colorado, Boulder, USA)

##### Part 4 (15:00-16:00):

- Panel discussion.  
Moderators: Bart Smolders, Daniele Cavallo, Mauro Ettore, Christoph Craeye, Stefania Monn