

## **NIST mmW RCN Workshop, July 2019**

### **Panel 1: State-of-the-Art of mmW Technology: Recent Significant Developments**

**Panelists:** Charlie Zhang (Samsung), Vasanthan Raghavan (Qualcomm), Sarah Yost (NI), Tommy Svensson (Chalmers), and Emil Olbrich (PrimeLime)

**Moderators:** Ismail Guvenc (NCSU) and Parmesh Ramanathan (UW-Madison)

#### **Discussion Items:**

- What should we expect by the end of 2019 on products and services?
- When can we expect mmWave mobile devices, specially smart phones, to enter the US market? Have they been introduced elsewhere?
- What do you see as the role of universities? What are fundamental research challenges where universities can contribute?
- There have been several major trials at ATT, Verizon and others, and recent deployments at 28 GHz and 39 GHz. What have we learned from these recent efforts?
- What are some observations related to blockage and coverage in mmWave? Will 5G mmWave networks be reliable and provide good coverage?
- Have your thoughts on research directions changed since the trials? Are there new problems that were not anticipated?
- What is the industry perspective on research testbeds on mmW networks (e.g. PAWR)? Would the provide any new insights, or is 5G mmW merely a lot of engineering challenge?
- What would you recommend as a research topic to a new PhD student who just started doing research on mmWave technology?