

Active Impedance Assessment and Beamforming Optimization for mm-Wave Antenna Arrays.

Organizer



Dr. Jaakko Juntunen completed his PhD in Radio Engineering in 2001 at Aalto University, Finland. After that, he has been working in the EDA industry in various roles, including technical support at APLAC Solutions and field application engineer at AWR Corporation, while since 2014 he is the sales director at Optenni Ltd. He has a wide experience in solving various RF design problems using circuit- and EM-simulators, ranging from IC simulation to full RF systems. Recently, Juntunen and his colleagues at Optenni Ltd have studied the active impedance dynamic in the context of active beamforming in poorly isolated antenna arrays.

Abstract

Traditional arrays consisting of well-isolated elements are usually studied via analytical beamforming techniques. However, with the introduction of 5G networks, phased arrays need to be designed according to strict size and cost requirements, which may result in increased coupling especially at mm-wave frequencies. Beamforming optimization for such arrays needs to consider the individual element patterns, system S-parameters, active impedance and amplifier characteristics simultaneously. These requirements are beyond the scope of classical formulations. In this workshop we'll demonstrate a workflow that couples circuit and beamforming aspects in an exact formulation, enabling accurate optimization of antenna arrays with moderate or poor isolation.

Programme outline

The workshop has the format of lectures coupled with software demonstrations. The audience is encouraged to ask questions and make comments during the workshop and in the Q&A section in the end. Moreover, all attendees are invited to visit Optenni booth E-050 for further discussions.