

8:00am-12:00pm | Oct 21, 2015 (Wednesday)

## 1E

<b>Title:</b>	<b>Interferometric measurement of surface vibration fields in microacoustic devices: application to research and development of SAW, FBAR and MEMS components</b>
<b>Lecturer:</b>	<b>Kimmo Kokkonen</b> , Aalto University, Finland
<b>Abstract:</b>	This short course is intended to introduce the participant to the possibilities offered by optical non-contact probing techniques for the characterization of surface vibration fields in microacoustic devices and test structures. The short course starts by providing a motivation for the optical probing of surface vibrations. This is followed by an overview of optical techniques that enable non-contact measurement of the surface vibration fields. After the general overview, we will focus on interferometric techniques. This part will include an introduction to the interferometric measurement principle, the optical setup, the detection equations, and the hardware needed for the measurement of both the amplitude and phase of the surface vibration. The second part of the course illustrates the capabilities of optical probing through a set of application examples. These will include topics such as measuring the plate wave dispersion properties of FBAR resonators, investigating wave behavior and energy losses in SAW devices, and studying the vibration modes and non-linear behavior of MEMS resonators.

### Biography



Kimmo Kokkonen was born in Helsinki, Finland, in 1977. He received his M.Sc. (Tech.) degree at Helsinki University of Technology (TKK), Finland. During his studies he has worked as a research scientist in the Materials Physics Laboratory at TKK. He received his D.Sc. (Tech.) at the Department of Applied Physics, Aalto University School of Science, Finland. He has published over 20 peer-reviewed journal articles and numerous conference papers on optical non-contact measurement of surface vibrations, wave propagation and behavior in microacoustic devices and on device physics. After leading the microacoustics research team at the university, Dr. Kokkonen recently joined Qorvo as a Senior R&D Acoustic Device Engineer