

Simulation of Acoustic MEMS Devices on Cloud HPC

This practical course will teach attendees both to simulate and to optimize the performance of typical acoustic MEMS devices, such as BAW & SAW and MUTs. Attendees will follow a series of real world tutorials, learning not only how to obtain real world results, but how to use them to achieve engineering design goals.

Finite Element Analysis is a flexible simulation tool which allows details analysis of multiphysics systems. This course will use OnScale, the leader in cloud enabled FEA packages, to provide the ability to run 1000s of simulations in parallel. Attendees will be given an OnScale account with free compute hours in order to complete the course.

Topics will include Piezoelectric Micromachined Ultrasonic Transducers (PMUTs) used for ultrasonic imaging applications and Surface Acoustic Wave (SAW) filters for 5G communications. Attendees will learn how to build models, apply boundary conditions, execute on the cloud and analyse results. The course will then demonstrate how to carry out a design study to optimize the performance of each design using cloud based simulation.