Wave interaction of subwavelength resonators in one dimension

Liora Rueff

Supervisor: Prof. Dr. Habib Ammari

Seminar for Applied Mathematics, ETH Zurich

We solve the wave equation with static material parameters and with periodically time-modulated material parameters in a one-dimensional high-contrast resonator structure in the subwavelength regime exactly, for which we compute the subwavelength quasifrequencies numerically. We prove an approximation formula in the form of an ODE using a capacitance matrix approximation. Moreover, we derive an effective medium theory for wave propagation in one-dimensional time-modulated structures.