

## Mathematical Colloquia

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**Tuesday, 27 November 2018**

17:15 h, Lecture Room 119

**Prof. Dr. Habib Ammari, ETH Zurich**

# Subwavelength Resonances: From Super-resolution to Metamaterials

### Abstract:

In this lecture, the speaker will review recent results on subwavelength resonances. His main focus is on developing a mathematical and computational framework for their analysis. By characterizing and exploiting subwavelength resonances in a variety of situations, he constructs a unified theory of super-focusing of waves, double-negative metamaterials, and controlling wave propagation at the subwavelength scale. Super-resolution and metamaterials are usually studied within the context of different approaches. Remarkably, as will be shown in this lecture, they owe their origin to the same underlying physical mechanism, namely, wave interaction with a subwavelength resonator.