“Photonic crystal Fano lasers and quantum noise in nanolasers”

In the talk I will cover two topics related to nanolasers. The first is the suggestion and experimental demonstration of a new type of laser, where one of the mirrors is constituted by a Fano resonance. Such a Fano laser has unique dynamics and can be used for short pulse generation as well as modulation into the terahertz range.

Secondly, I will discuss the quantum noise of lasers containing only a few discrete emitters (quantum dots). Analytical results are derived that agree well with stochastic simulations and allow to make conclusions on the role of the spontaneous emission factor and Purcell enhancement.