

**Christian Kraglund Andersen, Aarhus University, Denmark**

**Arrays of Josephson junctions: A useful tool for quantum optics**

Talk at ETH Zürich, 15. Febr. 2016, 11:00h

Abstract:

Superconducting resonators and qubits have within the last two decades progressed from a neat idea to a platform where novel concepts from quantum optics, information and computing are routinely implemented. In this talk I will review a useful tool for these implementations, namely an array of Josephson junctions. I will show how the non-linearity of such an array gives rise to interesting quantum effects when probing the system, how the dynamical properties of an array can be used in a new quantum feedback concept and, finally, how the large zero-point fluctuation of the field in an array can be used to reach the ultrastrong coupling regime of circuit QED.