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Quantum non-linear dynamics of photons and Cooper-pairs in a cavity-Josephson junction system

Embedding a Josephson junction within a superconducting microwave cavity provides a novel way of generating strongly non-linear quantum dynamics in a non-equilibrium setting. Driven by an applied voltage, Cooper pairs flow through the Josephson junction whilst also generating photons in the cavity. The cavity photons in turn act back, affecting the flow of the charges, leading to a complex interplay. In this talk I will outline a simple theoretical model inspired by recent experimental work on Josephson junction-cavity systems and describe some of the rich range of dynamics that can be accessed by simply tuning the bias voltage.

The event will take place online via Zoom as part of the group seminar of AG Metelmann (B12). For information on how to access the event, please contact: henning.reinken@itp.tu-berlin.de

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