

SFB 1432

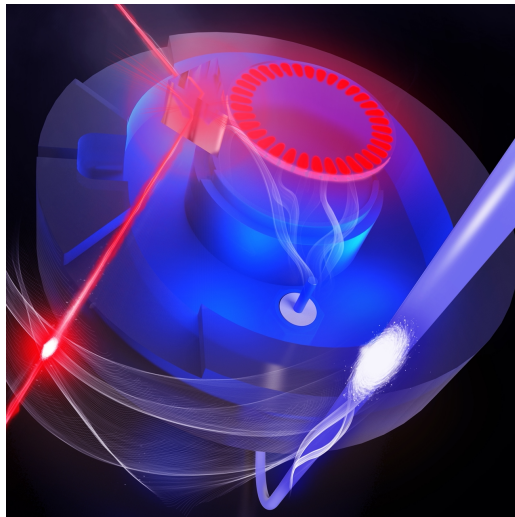
# Colloquium

06.07.2023  
Talk at 15:15  
in P 603  
refreshment afterwards



**Prof. Johannes Fink**

ISTA Wien



## Entangling microwaves with light: From conversion and backaction to EPR correlations and all-optical qubit readout

We introduce an optically pumped, superconducting, electrooptic device that exhibits strong interactions between microwave and telecom wavelength light. We demonstrate ultra-low noise wavelength conversion, dynamical backaction, and deterministic electro-optic entanglement generation. More recently we also used it to demonstrate all-optical, single-shot qubit readout without the need for any cryogenic microwave components. Such microwave photonic interconnects that operate close to the quantum limit offer new perspectives for a number of scaling, networking and sensing applications.

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