Physical Sciences Seminar

Quantum Seminar: Tunable photonic heat transport across superconducting circuits

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Host: Andrew Higginbotham

J. Senior, B. Karimia, A. Gubaydullina, A. Ronzania, Y.-C. Changa, J.T. Peltonena, C.D. Chena, and J.P. Pekolaa QTF Centre of Excellence, Department of Applied Physics, Aalto University School of Science, P.O. Box 13500, 00076 Aalto, FinlandBy integrating the tools of ultra-sensitive microwave bolometry with those of superconducting circuits (qubits), we have experimentally realised tunable photonic heat transport between mesoscopic thermal baths embedded in superconducting resonators, interfaced with a superconducting artifcial atom.We will present recent observations of heat transport in two scenarios:- where the resonators are symmetric, highlighting the role of the various coupling elements and the applicability of local vs global models for understanding this flux-tunable transport(1)- where the resonators are asymmetric, yielding a rectification based on the direction of transport(2)(1) A.Ronzani et al, Tunable photonic heat transport in a quantum heat valve, Nat. Phys. 14, 1991?995 (2018).(2) J.Senior et al, Thermal rectification via photon blockade in superconducting artificial atom, in preparation.

Tuesday, August 27, 2019 02:00pm - 03:00pm
Heinzel Seminar Room / Office Bldg West (I21.EG.101)

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