



Seminar/Talk

Beyond Flux Control: Thermal and Voltage Tuning of Superconducting Nanodevices

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Host: Georgios Katsaros

Magnetic fields are a familiar way to control superconducting circuits, but they are not the only possibility. Heat and applied voltages can also change how these devices carry current, offering new opportunities for superconducting electronics. In this seminar, I will discuss these possibilities through theoretical models and experiments. I will introduce concepts for controlling superconducting circuits by injecting electronic excitations, and present the experimental realization of a superconducting voltage amplifier powered by a temperature difference. I will then turn to voltage-controlled devices: semiconductor junctions in which a gate tunes superconducting current, and a fully suspended metallic superconducting nanowire in which a gate voltage strongly modifies the rate of switching into a resistive state. Together, these results show how the sensitivity of superconducting devices to heat and voltage can be used to amplify electrical signals, tune current transport, and control switching dynamics. On a separate note, I am also planning to join Prof. Katsaros's group as a postdoctoral researcher. Although the arrangements are not yet formally finalized, I have started looking into accommodation options from February 2027. I was wondering whether ISTA housing might be available from that time, and if you could point me towards the appropriate person to contact about availability and the application procedure.

Tuesday, November 24, 2026 10:00am - 11:00am

Office Bldg West / Ground floor / Heinzl Seminar Room (I21.EG.101)



This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station.

Please find a schedule of the ISTA Shuttle on our webpage:

<https://ista.ac.at/en/campus/how-to-get-here/> The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.