



Institute colloquium

Quantum Sensing of Quantum Materials

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The magnetic fields generated by spins and currents provide a unique window into the physics of correlated-electron materials and devices. Proposed only a decade ago, magnetometry based on the

electron spin of nitrogen-vacancy (NV) defects in diamond is emerging as a platform that is exceptionally suited for probing condensed matter systems: it can be operated from cryogenic temperatures to above room temperature, has a dynamic range spanning from DC to GHz, and allows sensor-sample distances as small as a few nanometers. As such, NV magnetometry provides

access to static and dynamic magnetic and electronic phenomena with nanoscale spatial resolution.

While pioneering work focused on proof-of-principle demonstrations of its nanoscale imaging resolution and magnetic field sensitivity, now experiments are starting to probe the correlated-electron physics of magnets and superconductors and to explore the current distributions in low-dimensional materials. In this talk, I will review some of our recent work that uses NV center magnetometry to image skyrmions in thin magnetic films, measure the spin chemical potential in magnetic insulators, and image hydrodynamic electron flow in layered materials.

Monday, November 23, 2020 04:00pm - 05:00pm

IST Austria Campus Online on Zoom



This invitation is valid as a ticket for the IST Shuttle from and to Heiligenstadt Station. Please find a schedule of the IST Shuttle on our webpage: <https://ist.ac.at/en/campus/how-to-get-here/> The IST Shuttle bus is marked IST Shuttle (#142) and has the Institute Logo printed on the side.