



## Colloquium

# Institute Colloquium: Vidya Madhavan (Univ. of Illinois Urbana-Champaign)

**Vidya Madhavan**

University of Illinois Urbana-Champaign

Host: Maskym Serbyn

Topological superconductors represent a fundamentally new phase of matter. Similar to topological insulators, the non-trivial topological characteristics of a topological superconductor dictate the presence of a topological edge states composed of Bogoliubov quasiparticles which live inside and span the superconducting gap. The intense interest in these materials stems from the fact that Bogoliubov excitations inside the gap of a topological superconductor are predicted to have all the characteristics of Majorana Fermions. A chiral p-wave superconductor which is topologically non-trivial is a natural platform for realizing these Majorana modes. In this talk I present scanning tunneling microscopy (STM) data on the newly discovered heavy fermion superconductor, UTe<sub>2</sub> with a TC of 1.6K. I will show signatures of coexisting Kondo effect and superconductivity which show competing spatial modulations within one unit-cell. STM spectroscopy at step edges show signatures of chiral in-gap states, predicted to exist at the boundaries of a topological superconductor. Combined with existing data indicating triplet pairing, the presence of chiral edge states suggests that UTe<sub>2</sub> is a strong candidate material for chiral-triplet topological superconductivity.

**Monday, October 11, 2021 04:00pm - 05:00pm**

Raiffeisen Lecture Hall



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.