

2019 IBS- CALDES Special seminar

- ✓ **Date & Time:** Friday, October 25 at 3:00PM
- ✓ **Venue :** Seminar Room #302, Science building #3
- ✓ **Speaker :** Prof. Tero Tapio Heikkila(University of Jyvaskyla)
- ✓ **Title :** Superconducting thermoelectric detector

Superconducting detectors are the most sensitive ways to measure electromagnetic radiation, and therefore they are used in applications requiring extreme sensitivity - for example our knowledge of the universe coming from the properties of the cosmic microwave background radiation is based on those detectors. The presently used detectors fall into two classes and their variants: transition edge sensors (TES) measuring temperature dependent resistance of superconductors around the critical temperature, and kinetic inductance detectors (KID) accessing the temperature dependent inductance. I will introduce a third type of a detector, a superconducting thermoelectric detector (TED), where the readout is self-powered by radiation, and is therefore fundamentally different from the existing detector concepts. We are currently pursuing to build and demonstrate the operation of such a detector in the EU-funded FET Open project SUPERTED. In my talk, I will explain the idea, pros and cons of thermoelectric detectors, and the challenges in building one.