

Study of the dependence on magnetic field and bias voltage of an AC-biased TES microcalorimeter.

At SRON we are studying the performance of a Goddard Space Flight Center single pixel TES microcalorimeter operated in the AC bias configuration. For x-ray photons at 6keV the AC biased pixel shows a best energy resolution of 3.7eV, which is about a factor of 2 worse than the energy resolution observed in identical DC-biased pixels. To better understand the reasons of this discrepancy, we investigated the detector performance as a function of temperature, bias working point and applied magnetic field. A strong periodic dependence of the detector noise on the TES AC bias voltage is measured. We discuss the results in the framework of the recent weak-link behaviour observed in TES microcalorimeters.