Small, Cold and Universal: Cryogenic Micro-Calorimeters a New Key Technology

Metallic magnetic calorimeters (MMCs) are state of the art cryogenic particle detectors which belong to the most sensitive devices to measure the energy of single quanta. Their universal applicability for particles and radiation as well as their high resolving power makes them a popular choice in many different experiments. Current fields of applications include X-ray spectroscopy, neutrino physics, material analysis, mass spectrometry and nuclear forensic. We will discuss the operating principle of MMCs, the basic material science behind their realization, as well as the status of development and recent applications.