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First results from BASKET innovative bolometers for the CEvNS detection

BASKET (Bolometers At Sub KeV Energy Threshold) is an R&D aiming at the development of innovative detectors for the measurement of the Coherent Elastic Neutrino-Nucleus Scattering, an interaction characterized by a cross-section 10 to 1000 times greater than the neutrino physics standard detection channels.

The only experimental signature is a low energy nuclear recoil (10 to 100eV).

BASKET is facing the challenge to develop very sensitive bolometric detectors, maintaining a background noise below the expected signal while being operated in close vicinity of a nuclear reactor in aboveground conditions. For this reason, several developments are required to reach an energy threshold of the order of 10eV and a response time in the range of 0.1-1ms to have a reasonable dead time and effectively discriminate the background.

I will show first results about investigating and evaluating the performances of different thermal sensors coupled to Li₂WO₄ crystals.

Mini-abstract

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Experiment/Collaboration

Primary author: MAURI, Beatrice (CEA/IRFU/DPhP)

Presenter: MAURI, Beatrice (CEA/IRFU/DPhP)

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