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## **BASKET - Bolometers At Sub-KeV Energy Thresholds**

*Thursday, July 25, 2019 6:45 PM (15 minutes)*

BASKET (Bolometers At Sub-KeV Energy Thresholds) is an R&D program aiming at the development of innovative detectors to search for neutrinoless double beta decay and for the coherent neutrino-nucleus scattering (CNNS) at reactors. In this poster, we will focus on the latter search. We propose the development of  $\text{Li}_2\text{WO}_4$  crystals as a new absorber material for the CNNS coupled to new thermal sensors (like MMC, NbSi TES or doped-Si) to optimize the time response and the energy threshold. In addition, neutrons can be tagged using the neutron capture on  $^6\text{Li}$  allowing for an in-situ characterization of the neutron background.

We present first tests on an 11 g  $\text{Li}_2\text{WO}_4$  crystal, which was read-out with a Neutron Transmutation Doped Ge sensor and a Ge Neganov-Luke light detector, showing that this compound exhibits good bolometric and scintillation properties.

In parallel, a small 1 g  $\text{Li}_2\text{WO}_4$  crystal has been thermally coupled to a metallic magnetic calorimeter and measured at 11 mK. The first results are encouraging: a baseline FWHM energy resolution of 25 eV was obtained corresponding to a threshold of 53 eV, and the pulses have shown a rise time constant (10%-90%) of 370  $\mu\text{s}$ .

The perspective of this activity as a complementary choice to other existing projects on the same subject will be presented.

### **Less than 5 years of experience since completion of Ph.D**

N

### **Student (Ph.D., M.Sc. or B.Sc.)**

N

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