

BULLKID: Low-threshold Kinetic Inductance Detectors for neutrino and dark matter searches

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Cryogenic sensors are used in experiments to detect low-energy nuclear recoils from dark matter or neutrino interactions through coherent neutrino scattering. Besides the record energy thresholds, the limit of current technologies resides mainly in the scale-up capabilities.

BULLKID is a R&D supported by INFN. It is developing a new detector concept to reach relatively high target masses with high granularity, by exploiting the multiplexing capability of Kinetic Inductance Detectors.

The detector unit we are designing consists in an array of ~ 100 silicon absorbers sensed by phonon-mediated, microwave-multiplexed kinetic inductance detectors, with energy threshold below 100 eV and total target mass around 30 g. The single detector unit will be engineered to ensure a straightforward scalability to a future kg-scale experiment. In this talk we will describe the challenge and the status of the project.

TIPP2020 abstract resubmission?

No, this is an entirely new submission.

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