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BULLKID: Monolithic array of particle absorbers sensed by Kinetic Inductance Detectors

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We present BULLKID, a project aiming to deliver a scalable cryogenic detector for coherent neutrino nucleus scattering and low-mass Dark Matter direct detection.
The device consists of an array of silicon targets sensed by multiplexed Kinetic Inductance Detectors (KIDs).
The prototype we present is made of 64 cubic voxels of $5.4 \times 5.4 \times 5$ mm^3 each carved out of a 5 mm thick 3" silicon wafer.
The carvings leave intact a 0.5 mm thick common disk acting as a holder for the dices and as substrate for the KID structures.
The resulting array is monolithic and highly segmented in order to avoid individual holding structures that may generate backgrounds.
The operation of this still nonoptimized prototype has led to an average baseline resolution of 26 ± 7 eV, demonstrating that it is suitable for the detection of low energy processes.
We present the status of the project and the steps towards a further improvement of the energy resolution and towards a first measurement of the background.

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