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## Cryogenic light detectors for the search of neutrinoless double beta decay

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CALDER (Cryogenic wide-Area Light Detectors with Excellent Resolution) is a project for development of large area phonon mediated KID (Kinetic Inductance Detectors), for the detection of Cherenkov radiation emitted from  $\beta$ s in  $0\nu\text{DBD}$  decay in  $\text{TeO}_2$ .

The KIDs are a superconducting detectors mode of high quality factor superconducting resonators, which are coupled to a transmission line for readout signal.

We designed and fabricated KID detectors using aluminum. The Al thin films (40 nm) were evaporated on Si(100) high resistivity silicon wafers using an electron beam evaporator in a high vacuum chamber.

We report the steps of the fabrication process. All devices are made in direct-write using Electron Beam Lithography (EBL), positive tone resist poly-methyl methacrylate (PMMA) and lift off process.

In order to improve the sensibility of the detectors we have started recently to use sub-stoichiometric TiN deposited by means of DC magnetron sputtering. In this case we will optimize a different fabrication process based on dry etch.

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