



Contribution ID: 274

Type: **Poster**

Kinetic inductance detectors on CaF₂ for spin-dependent dark matter search

Thursday, 25 July 2019 18:45 (15 minutes)

CaF₂ is a novel target for neutrino-less double-beta decay and spin-dependent dark matter studies, since ⁴⁸Ca is one of the double-beta decay nuclei and ¹⁹F is sensitive to spin-dependent elastic scattering with dark matter.

We implement kinetic inductance detectors(KIDs) on CaF₂ crystal which is used as substrate. KIDs on CaF₂ is cooled to low temperature with a dilution fridge. The resonance is found in O(1GHz). In addition, several basic parameters of KIDs are measured. Thus, we confirmed that KIDs on CaF₂ worked well. This result opens a new possibility in the next generation of astroparticle physics experiments.

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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Session Classification: Poster session

Track Classification: Low Temperature Detector Development and Physics