



Silicon detectors with implanted contacts for the detection of visible photons using the Neganov-Trofimov-Luke Effect.

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There is a common need in astroparticle experiments such as direct dark matter search or neutrinoless double beta decay for detectors with a very low energy threshold. By employing the Neganov-Trofimov-Luke Effect (NTLE), the thermal signal of particle interactions in a semiconductor absorber operated at cryogenic temperatures can be amplified by drifting electrons and holes in an electric field. We investigated a new type of NTLE detector aiming at the detection of visible photons (420 nm). The electric field configuration was designed to improve the charge collection within the semiconductor, taking advantage of implanted contacts in a silicon wafer. The first experiments indicate promising results.