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Study of cryogenic light detector based on germanium for heat-light double readout bolometers

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A well-perfoming light detector are an essential prerequisite for the light-heat dual readout scheme and are therefore critical components of cryogenic crystal bolometers. Given the current lack of domestic experience in developing cryogenic light detectors, this project is dedicated to the research of germanium-based light detectors for cryogenic bolometer, which includes

- Investigation and establishment of a basic technical approach for semiconductor germanium-based light detectors.
- Design for surface anti-reflection coatings using silicon nitride (SiN⊠) as the coating material, and study of the optical performance of the detectors (with thin films)at room temperature.
- Design and assemby of the cryogenic light detectors, installation onto a dilution refrigerator platform, conducting tests at ultra-low (mK) temperatures to characterize their response.

Collaboration you are representing

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