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Development of Ge-based Detectors with n/γ Discrimination at 77 K for Dark Matter Searches WENZHAO WEI, DONGMING MEI, CHAO ZHANG, The University of South Dakota, CUBED COLLABORATION — Low background germanium (Ge) crystal detectors are a well-accepted methodology in the searches for dark matter. In this work, we report a development of micro-strip planar detectors with an effective threshold lower than 100 eV. By measuring plasma time, such a new-type Ge-based detector is expected to have capability of discriminating nuclear recoils from electron recoils due to plasma time difference of these two classes of events. Because of the extreme low energy threshold and n/γ discrimination, the proposed detector is anticipated to have great sensitivity in detecting low mass WIMPs and low-energy neutrino interactions.

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