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Towards Dark Matter Searches with the Micro-X Sounding Rocket

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Micro-X is projected to set world-leading limits in indirect galactic dark matter searches in a single sounding rocket flight. Micro-X's region of interest (0.5-5 keV) is of particular interest following the reported observation of an anomalous line by the X-ray satellites in this band. Following the second Micro-X flight in 2019, which will observe the Cassiopeia A supernova remnant, the instrument will be modified to achieve a large field of view for the dark matter search. To this end, a new TES array will be made that is optimized for this bandpass, along with a new superconducting magnetic shield that will accommodate the increased field of view. Additional modifications are planned outside of the cryostat. We present the sensitivity of the instrument for a dark matter search, and the hardware modifications that will be made to optimize the instrument.

Less than 5 years of experience since completion of Ph.D

Y

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