Abstract Submitted
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DarkLight Detector Energy Deposition and Temperature Study[1]

THOTH GUNTER, Hampton University student — Dark matter is thought to make up more than half of the total mass of most galaxies, the effects of which can be seen through astrophysical observations and can explain anomalies which would otherwise clash with the general understanding of physics. The Detecting A Resonance Kinematically with eLectrons Incident on Gaseous Hydrogen Target (DarkLight) experiment will investigate the existence of a dark matter force carrying particle, the A-prime (A') boson, through the study of electron-proton collisions. The experiment aims to find the A' boson by looking for a resonance peak within the electron-positron invariant mass spectrum. The DarkLight experiment is a proposed experiment to be run at Jefferson Laboratory's Free Electron Laser. This study preforms an initial investigate on the energy deposition and temperature change with in the sensitive volumes of the detector. The results of this study will be used to further design DarkLight's detector.

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Thoth Gunter
Hampton University student

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