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Presentation Type: Oral

Sorting Category: 06. Electromagnetic Interactions

Category Type: Experimental

Abstract Title: The DarkLight experiment at ARIEL (TRIUMF)

The DarkLight experiment was conceived to search for a dark photon produced in electron scattering, motivated by theory, astrophysical observations, and observed anomalies in particle physics such as the deviation of the muon anomalous magnetic moment from the Standard Model. Of particular interest is the mass window below 20 MeV, favored by an observed excess of dilepton production from nuclei known as the Be-8 anomaly, which has been explained with a fine-tuned boson representing a fifth force. The new DarkLight project has been proposed to use the 30-50

Abstract Body: MeV electron beam of the ARIEL facility at TRIUMF on a Tantalum target along with a high-resolution apparatus to detect the e^+e^- pair, to probe the continuous e^+e^- invariant mass spectrum from 10-20 MeV for narrow structures and to provide an independent test of the fifth-force postulation. The experiment design, sensitivity, implementation strategy, and current status will be reported.

Team Acknowledgement: DarkLight Collaboration

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News-worthy Research? No

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