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Type: **Poster (in person)**

Exploring the Electromagnetically Interacting Dark Matter at the International Linear Collider

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Dark Matter being electrically neutral does not participate in electromagnetic interactions at leading order. However, we discuss here fermionic dark matter (DM) with permanent magnetic and electric dipole moment that interacts electromagnetically with photons at loop-level through a dimension-5 operator. We discuss the search prospect of the dark matter at the proposed International Linear Collider (ILC) and constrain the parameter space in the plane of the DM mass and the cutoff scale Λ . At the 500 GeV ILC with 4 ab^{-1} of integrated luminosity we probed the mono-photon channel and utilizing the advantages of beam polarization we obtained an upper bound on the cutoff scale that reaches up to $\Lambda = 3.72 \text{ TeV}$.

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Primary author: KUMAR SHARMA, MANISH (Birla Institute of Technology and Science pilani, Goa Campus)

Presenter: KUMAR SHARMA, MANISH (Birla Institute of Technology and Science pilani, Goa Campus)

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