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New physics search at ILC-BDX experiment

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We study capability of the ILC beam dump experiment to search for dark matter particles, comparing the performance of the electron and positron beam dumps. The dark matter particles involving the dark photon are considered as benchmark models, where electron recoil processes and decays of heavier dark matter particles are included as signal events.
We find that the ILC beam dump experiment has higher sensitivity than past beam dump experiments, with the positron beam dump having a better performance for dark matter particles which are produced by the electron-positron pair-annihilation.

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