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A Novel Beam Dump Experiment at CMS

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Despite the current standard model of particle physics has been highly successful, there are still unanswered questions surrounding dark matter. This suggests that new physics beyond the standard model may be discovered at the Large Hadron Collider. In my talk, I will focus on the search for the dark sector using a novel concept of beam dump experiments at the CMS experiment. While this approach has great potential to find new physics, it also poses significant challenges. I will discuss the challenges and highlight opportunities to overcome them using machine learning techniques and other methods to expand our potential for discovery in the near future.

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