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A Bayesian dark matter analysis pipeline for CTA

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The Cherenkov Telescope Array (CTA) is poised to revolutionise gamma-ray astronomy. One of the key science goals of CTA is the detection of gamma rays from dark matter annihilation. In this talk, I will describe a new Bayesian pipeline for the detection of dark matter using CTA data. The pipeline builds on top of the popular Gammapy package. The dark matter signal model is described in terms of a prior for the distribution of sky location and gamma-ray energy. Different dark-matter scenarios can be compared using Bayesian model selection. It is possible to marginalise over systematic errors associated with the signal model or the detector response. I discuss the benefits of this approach, and present some preliminary results obtained with mock data of the galactic centre.

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