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## Searching for New Physics with the Cherenkov Telescope Array Observatory

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Since its discovery by the *Fermi*-LAT space telescope, the galactic centre gamma-ray excess (GCE) has been the subject of intensive investigation in high-energy astrophysics. In this presentation, I will share progress on a current effort to model the GCE and determine if the Cherenkov Telescope Array Observatory (CTAO) will be able to distinguish between two prevalent hypotheses of the GCE emission: dark matter, or millisecond pulsars (MSPs). Our preliminary results of this investigation seem to suggest that CTAO may have sufficient performance to reveal features in the spatial distribution of gamma-ray emission that can strongly test a MSP scenario vs. dark matter. Hence, the CTAO could be the key to improving our current understanding of dark matter.

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