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Sensitivity of CTA to Gamma Rays from Dark Matter Annihilations

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The nature of Dark Matter (DM) is a pressing question, and can be investigated through the detection of gamma rays produced by annihilating DM. The upcoming Cherenkov Telescope Array (CTA) will provide increased sensitivity to high energy gamma rays and hence higher mass DM particles. When conducting analyses of the capability of CTA it is important to study the effects of backgrounds. Previous analyses of CTA sensitivity to DM have neglected the effects of the diffuse gamma ray background. We present sensitivity limits which include the effects of this background, using both a standard two region On-Off method and a multi-region On-Off morphological analysis. The addition of the diffuse gamma ray background degrades the sensitivity limits, and we investigate methods to mitigate this.

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