

Abstract Submitted  
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**Magnetic Enhancements to Dark Matter Annihilation**<sup>1</sup> WILLIAM G. GARDNER, TODD TINSLEY, Hendrix College — The rate of dark matter annihilation should be greatest where the dark matter density is maximal. This is typically in the gravity wells of large stars where it also happens to be true that magnetic fields can be very large. In this poster we present an examination of how these intense magnetic fields can alter the cross section for dark matter annihilation into electron-positron pairs. We work within the framework of the minimally supersymmetric extension to the Standard Model (MSSM), and we choose its lightest neutralino as our dark matter candidate. Within this theory, dark matter can annihilate into many different final-state particles through several channels. We restrict our analysis to an electron-positron pair final state because of the low mass and reasonable detection signature. Since strong magnetic fields change how momentum is conserved for charged particles, this calculation investigates the relationship between the annihilation cross section and the electron's and positron's Landau level.

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