

Abstract Submitted
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Supersymmetric Dark Matter as the Source of the WMAP Haze¹

GABRIEL CACERES, Pennsylvania State University, DAN HOOPER, Fermilab — An excess microwave emission from the region around the Galactic Center has been observed by the Wilkinson Microwave Anisotropy Probe (WMAP). It has been argued that this anomalous signal, known as the WMAP Haze, may be the synchrotron emission from relativistic electrons and positrons produced in dark matter annihilations. In particular, the angular distribution, spectrum, and intensity of the observed emission are consistent with the signal expected to result from a Weakly Interacting Massive Particle (WIMP) with an electroweak-scale mass and an annihilation cross section near the value predicted for a thermal relic. In this work we revisit this signal within the context of supersymmetry, and evaluate the parameter space of the Constrained Minimal Supersymmetric Standard Model (CMSSM). We find that, over much of the supersymmetric parameter space, the lightest neutralino is predicted to possess the properties required to generate the WMAP Haze. If the WMAP Haze is in fact generated by annihilating neutralinos, then the prospects for direct and indirect dark matter detection experiments are quite promising.

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