

Abstract Submitted
for the APR14 Meeting of
The American Physical Society

Resolving Small-Scale Dark Matter Structures Using Multi-Source Indirect Detection KENNY CHUN YU NG, RANJAN LAHA, SHELDON CAMPBELL, The Ohio State University, Columbus, SHUNSAKU HORIUCHI, University of California, Irvine, BASUDEB DASGUPTA, International Center for Theoretical Physics, Trieste, KOHTA MURASE, Institute for Advanced Study, Princeton, JOHN BEACOM, The Ohio State University, Columbus — The extragalactic dark matter (DM) annihilation signal depends on the product of the clumping factor, $\langle\delta^2\rangle$, and the velocity-weighted annihilation cross section, σv . It is important to determine the clumping factor as it depends on the minimum DM halo mass, M_{\min} , or equivalently the kinetic decoupling temperature of DM. In this work, we demonstrate how to break the “clumping factor– σv ” degeneracy by comparing the Isotropic Gamma Ray Background with tentative DM signals from the Galactic Center. We obtain interesting limits on M_{\min} and σv . Potential improvements in near future are discussed, which will have significant implications for the tentative DM signals.

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Date submitted: 10 Jan 2014

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