

Abstract Submitted
for the 4CF14 Meeting of
The American Physical Society

The Incredible Bulk¹ TAKAHIRO YAMAMOTO, Department of Physics and Astronomy, University of Utah, KEITA FUKUSHIMA, Department of Physics & Astronomy, University of Hawai'i, CHRIS KELSO, Department of Physics and Astronomy, University of Utah, JASON KUMAR, Department of Physics & Astronomy, University of Hawai'i, PEARL SANDICK, Department of Physics and Astronomy, University of Utah — Recent results from the LHC have placed strong constraints on the masses of colored superpartners. The MSSM parameter space is also constrained by the measurement of the Higgs boson mass, and the requirement that the relic density of lightest neutralinos be consistent with observations. Although large regions of the MSSM parameter space can be excluded by these combined bounds, leptophilic versions of the MSSM can survive these constraints. In this paper we consider a scenario in which the requirements of minimal flavor violation, vanishing CP -violation, and mass universality are relaxed, specifically focusing on scenarios with light sleptons. We find a large region of parameter space, typically mass of bino and the lighter slepton around 100 GeV with maximal chiral mixing, which, analogous to the original bulk region, provides the efficient dark matter annihilation rate, allowing the s-wave contribution of which be as large as $\mathcal{O}(1)\text{pb}$. We find that the most relevant constraints on this scenario arise from collider bounds of direct slepton searches and from measurements of the magnetic and electric dipole moments of the electron and muon, and that these models have interesting signatures at a variety of indirect detection experiments.

¹DOE grant de-sc0010504

Takahiro Yamamoto
Department of Physics and Astronomy, University of Utah

Date submitted: 09 Sep 2014

Electronic form version 1.4