

APR21-2021-000961

Abstract for an Invited Paper
for the APR21 Meeting of
the American Physical Society

Dark matter and its interactions¹

HAI-BO YU, University of California, Riverside

In this talk, I will first give an overview on dark matter distributions in galactic systems, including spiral galaxies in the field, Milky Way satellite galaxies, newly-discovered ultra diffuse galaxies, and galaxy clusters, and show that they are more diverse than predicted in standard cold dark matter. Then I will show that self-interacting dark matter may provide a unified explanation to the diverse dark matter distributions across the wide range of galactic mass scales. I will further discuss other intriguing astrophysical implications of self-interacting dark matter, such as the origin of supermassive black holes in the early Universe.

¹The US Department of Energy, the John Templeton Foundation and NASA