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(I) The Light and Fuzzy Side of Dark Matter

The identity of dark matter remains a mystery, despite decades of theorizing and detection efforts. This includes the mechanism for its primordial production, its interactions with itself or with visible matter, and the very nature of dark matter, which could range from a Bose-Einstein Condensate, to Black Holes, to a traditional particle. In this talk I will discuss new ideas for dark matter, and how to experimentally test these ideas. I will focus on dark matter in the extreme low mass range, which may exhibit exciting new phenomena, such as exotic phases of matter and vortex formation. These models can be tested in a wide array of experimental arenas, ranging from the large scale structure of the universe to particle physics experiments.

Author: MCDONOUGH, Evan

Presenter: MCDONOUGH, Evan

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