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(I) Making Universal Axions

Tuesday 8 June 2021 13:30 (25 minutes)

In this talk, I will describe my efforts to understand the nature of the mysterious dark matter. I provide an overview of the general problem and then describe my current approach to it, which is to characterize the behavior of a proposed dark matter particle, the axion. I will give some insight into how I am using a range of tools – model building, computation, and high energy astrophysics – to get at the basic question of “what is the statistical mechanics of axion dark matter”?

I will discuss work that shows that the self-interaction should not be ignored and that the sign of the interaction makes a significant difference in the evolution of the system, both for QCD axions and fuzzy dark matter.

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Track Classification: Symposia Day (DTP) - Cosmology/Jim Peebles celebration