

Axions and the formation of supermassive black holes at cosmic dawn

Tuesday 25 March 2025 13:45 (15 minutes)

Axion dark matter thermalizes by gravitational self-interactions and forms a Bose-Einstein condensate. It is shown that the rethermalization of the axion fluid during the initial collapse of large scale overdensities at cosmic dawn transports angular momentum outward sufficiently fast that black holes form with masses ranging from approximately 10^5 to a few times $10^{10} M_{\odot}$.

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Session Classification: SESSION 8: Dark Matter Theory