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Supermassive black hole formation in scalar field dark matter models

Scalar-field dark matter (SFDM) halos exhibit a core-envelope structure with soliton-like cores and CDM-like envelopes. Simulations without self-interaction (free-field case) report a core-halo mass relation which can be understood if core and halo obey certain energy or velocity scalings. By extending the core-halo mass relations to include SFDM with self-interaction, in this talk we examine the possibility of supermassive black hole formation in the SFDM model.

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