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Gravitational impact of Supernovae in Ultra-light Axion Dark Matter halos

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One of the viable dark matter models is the Ultra-light Scalar field Dark Matter where it assumes an ultralight axion-like particle of mass 10⁽⁻²²⁾eV. Current cosmological (dark matter only) simulations reveal that the dark matter halos formed in this model have a unique wave-like structure and a characteristic soliton at their centers. In this talk, I will discuss how these inners solitons are modified when we account for some violent baryonic feedback effects using a semi-anlytical model to describe Supernovae feedback. I will then show how constraints from local dwarf galaxy observations may be affected.

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