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Dark Matter-Induced Baryonic Feedback in Galaxies

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In this talk, we discuss a baryonic feedback mechanism induced by dark matter ignition of white dwarf populations, and its potential effects on galaxy evolution and star formation. Previous works have shown that Type Ia supernova ignitions of sub-Chandrasekhar white dwarfs may be caused by asymmetric dark matter captured within white dwarfs, leading to the formation and subsequent collapse of a dark matter core. These dark matter-induced supernovae become an additional source of baryonic feedback in the galaxy. We implement this dark feedback mechanism in a simulation of an isolated galaxy, using the galaxy evolution code GIZMO, and discuss preliminary results of the effects of dark feedback on star formation and dark matter profiles.

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