

Dark Matter and Stars: Multi-Messenger Probes of Dark Matter and Modified Gravity

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Dark matter evaporation from celestial bodies

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Scatterings of galactic dark matter (DM) particles with the constituents of celestial bodies could result in their accumulation within these objects and could give rise to observable effects. Nevertheless, the finite temperature of the medium sets a minimum mass, the evaporation mass, that DM particles must have in order to remain trapped. DM particles below this mass are very likely to scatter to speeds higher than the escape velocity, so they would be kicked out of the capturing object and escape. In this talk, I will obtain the DM evaporation mass for all spherical celestial bodies in hydrostatic equilibrium and I will illustrate the critical importance of the exponential tail of the evaporation rate.

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