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Could compact stars in Globular Clusters constrain dark matter?

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It has been argued that Globular Clusters can be originated as dwarf galaxies whose dark matter is then stripped through tidal interactions with the host galaxy. If that is the case, one can argue that, using compact stars such as white dwarfs, and assuming that a dark matter component survived the stripping, it is possible to place constraints on dark matter interactions such as annihilation and scattering through observables such as the temperature of the stars. One important ingredient, is the dark matter density present in the GC, so far, only semi-analytical methods have been used to provide such value. In this work we revisit those limits using the stellar kinematics of the GC to place constraints on the dark matter density.

Submitted on behalf of a Collaboration?

No

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