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## Scalar field dark matter scenarios

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In the paradigm of the Standard Cosmological Model, 83% of the mass density in the Universe cannot be explained with ordinary baryonic matter and requires an additional non-baryonic component. The preferred scenario since the 1980s is weakly interacting massive particles scenario ( $> 1$  GeV) (WIMPS). However, despite many experiments, these particles have still not been detected. This has revived interest in alternative scenarios, including the possibility that dark matter is associated with a scalar field filling all the space. One of the most attractive features of this model is that scalar fields can form stable equilibrium configurations called solitons and then are able to form structure. This project aims the development of new numerical studies to analyze the formation of large-scale structures in this scenario. At this first stage, we develop numerical calculations in simple situations such us the relaxation of the scalar cloud in a galactic halo or the collision of two solitons.

### Language

English

### Field

Cosmology, dark matter.

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