

Modeling Dark Matter Halos With Nonlinear Field Theories

Friday, 11 September 2020 13:19 (7 minutes)

In the present work we show that it is possible to model galactic dark matter from nonlinear scalar field theories coupled to the gravity sector. In order to obtain analytical solutions for the scalar fields we consider a spherically symmetric space-time. We also assume a theoretical framework where dark matter consists of a complex scalar field, which is responsible for producing galactic halos through Bose condensation coupled to gravity. The developed approach is able to predict a good theoretical fit for the rotation curves in both dwarf and low surface brightness late-type galaxies.

Primary author: RIBEIRO DA SILVA MORAES, Pedro Henrique (Instituto de Astronomia, Geofísica e Ciências Atmosféricas –IAG, Universidade de São Paulo –USP)

Presenter: RIBEIRO DA SILVA MORAES, Pedro Henrique (Instituto de Astronomia, Geofísica e Ciências Atmosféricas –IAG, Universidade de São Paulo –USP)

Session Classification: DM, DE, GWs, BHs, GRAVITATION, GALAXIES, QCD, LIFE, GRBs, COSMOLOGY, OA, KT