



Gravitational Geometry and Dynamics Group Seminar

Wed., September 18th, 2024, at 11h00.

Room: Sala Sousa Pinto and Zoom ID: 955 4130 8539

(Password: contact jnicoules@ua.pt)

Víctor Jaramillo

University of Science and Technology of China

> More about $Gr \odot v$ at: <u>gravitation.web.ua.pt</u>



Complex structures of boson stars and anisotropic distribution of satellite galaxies

We construct and explore Noether chargeswapping structures of boson stars, drawing inspiration from similar configurations of nontopological solitons in Minkowski space (Chargeswapping Q-balls). The resulting structures are dynamic, with a multipolar structure and both positive and negative Noether charges within a star. The opposite charges are exchanged over time, and thanks to gravitational attraction, they exist even in the case of a free scalar field. We also investigate the effects of self-interactions on these complex structures. Finally, we discuss the use of such charge-swapping boson star models on a galactic scale as a potential solution to the problem of the observed anisotropic distribution of satellite galaxies.

The Gr@v Seminars are supported in part by the FCT – Portuguese Foundation for Science and Technology, through projects, CERN/FISPAR/0027/2019, PTDC/FIS-AST/3041/2020, 2022.04560.PTDC and thorough CIDMA – Center for Research and Development in Mathematics and Applications, within projects UIDB/04106/2020 (https://doi.org/10.54499/UIDB/04106/2020) and UIDP/04106/2020 (https://doi.org/10.54499/UIDP/04106/2020).



Fundação para a Ciência e a Tecnologia

