Contribution ID: **53** Type: **not specified**

Sloshing spirals crossed by galaxies under ram pressure stripping

Thursday 25 August 2022 14:00 (15 minutes)

In off-axis collisions involving galaxy clusters cold gas fronts may be induced if conditions are met, called sloshing spirals. These spirals are composed of gas removed from the cluster core, which is cool and has low entropy, forming discontinuities in temperature and density.

Galaxy properties, such as star formation rate and gas stripped, are aimed to be analyzed in order to spot the significant effects in galaxy evolution that can be caused by crossing these kinds of discontinuities.

A sequence of simulations are done using Gadget-4, an N-body simulation code that implements smoothed particle hydrodynamics. Two idealized galaxy clusters are generated and conditions are set to induce the sloshing spiral from a collision. From this a snapshot is selected when there is a well defined spiral, used subsequently as part of the initial conditions for another simulation. In this second simulation a relaxed idealized galaxy is inserted into an undisturbed region in the main cluster, heading into its core to cross the cold gas front. The same idealized galaxy is also inserted in a different region where there is no discontinuity, forming a third simulation and making it possible to isolate different interactions caused solely due to crossing the spiral in the first galaxy.

Current preliminary results suggest that ram pressure is indeed affected by the intracluster medium properties, while a more detailed analysis would provide a better picture for the effects in star formation rate.

Further simulations with better tailored conditions and resolution should allow a clearer understanding of the effects imposed by a sloshing spiral onto a galaxy crossing its temperature and density discontinuities.

Author: MELLO, Elvis (Universidade Federal do Paraná)

Co-author: Dr GARCIA MACHADO, Rubens Eduardo (UTFPR - Universidade Tecnológica Federal do Paraná)

Presenter: MELLO, Elvis (Universidade Federal do Paraná)

Session Classification: Apresentações