

Service d'Astrophysique
SÉMINAIRE

Mardi 17/12/2013, 10h00-11h00

CEA Saclay, Orme des Merisiers Bat 709, salle 3 (salle Cassini, Rdc)

THE EVOLUTION OF GIANT MOLECULAR CLOUDS

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Giant Molecular Clouds (GMCs) are the sites of most star formation in galaxies. I will discuss recent simulations which demonstrate the formation and evolution of GMCs, and star formation within them, in a galactic context. Giant molecular clouds are found to form as the result of mergers of smaller clouds in the spiral arms, combined with gravitational instabilities. The clouds then disperse by shear and stellar feedback. The most massive GMCs are sheared into interarm spurs as they leave the spiral arms. Overall, the GMCs are found to have lifetimes comparable to their crossing times, and the maximum lifetimes comparable to an arm crossing time. I will also discuss the stellar content of these clouds, showing results on the stellar ages in numerically computed GMCs in a galactic environment. Although it is impossible to resolve individual stars, star particles are inserted representing 100 Msun. Interestingly the age distribution of GMCs appears to vary as a function of environment, and GMC formation mechanism, with interarm GMCs containing an older stellar population compared to spiral arm GMCs. Finally I will show how we are using maps of CO emission from simulated galaxies to try and constrain the structure of the Milky Way.

Le cafe sera servi 10 minutes avant

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