



PHYSICS AND ASTRONOMY SEMINAR

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“Chemical Signature of Gas-Rich Disc-Disc Mergers at High Redshift”

Abstract

We used an SPH algorithm, with a detailed treatment of star formation, supernovae feedback, and chemical enrichment, to perform simulations of mergers between gas-rich disc galaxies. These simulations result in the formation of a remnant with disc morphology. Stars formed by a starburst during the merger, and stars formed after the merger have different kinematical and chemical properties. The first ones are located in a thick disc or in the halo. They are partially supported by velocity dispersion and have high $[\alpha/\text{Fe}]$ ratios even at metallicities as high as $[\text{Fe}/\text{H}]=-0.5$. Stars formed later are located in a thin, rotationally supported disc, and have lower $[\alpha/\text{Fe}]$ ratios. We find that, while the kinematic and structural properties of the merger remnant depend strongly upon the orbital parameters of the mergers, there is a remarkable uniformity in the chemical properties of the mergers. This suggests that general conclusions about the chemical signature of gas-rich mergers can be drawn.

Friday, September 16, 2011

2:30 p.m.

Elliott Building

Room 061