

Merger-driven outflows and inefficient star formation

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Regulating the available gas mass inside galaxies proceeds through a delicate balance between inflows and outflows, but also through the internal depletion of gas due to star formation. At the same time, stellar feedback is the internal engine that powers the strong outflows. Since star formation and stellar feedback are both small scale phenomena, we need a realistic and predictive subgrid model for both. We describe the implementation of supernova momentum feedback and star formation based on the turbulence of the gas in the RAMSES code. For star formation, we adopt the so called multi-freefall model. The resulting star formation efficiencies can be significantly smaller or bigger than the traditionally chosen value of 1%. We apply this new numerical models to cosmological simulations of Milky Way-like halos and discuss our findings.

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