

Towards realistic modelling of star formation-feedback loop in galaxy formation simulations



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I will review recent progress in galaxy formation simulations due to improvements in treatment of stellar feedback and star formation. I will highlight the role local star formation efficiency is playing in setting the efficiency with which galaxies convert available baryons into stars using specific examples of recent galaxy formation simulations. I will also compare values of star formation efficiency with observational estimates in star forming clouds and will discuss the mechanisms behind self-regulation of star formation observed in certain simulation regimes.

I will then describe a new model, in which star formation efficiency is modelled "on the fly" using a turbulence-based subgrid model based on results of high-resolution simulations of molecular clouds. The model predicts a wide variation of star formation efficiency per free fall time at odds with the usual assumption in star formation modelling. At the same time, our model predicts distribution of star formation rates in broad agreement with observations of both local and resolved extragalactic GMCs.

Tuesday

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12:30 P.M.

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