

## Mapping the Diffuse Baryons: Toward a Physical Picture for Galaxy Evolution

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4 P.M.

Rm 118 NSH

Current theories of galaxy formation state that galaxies arise at the peaks in the overdensities of the dark matter distribution, with baryonic matter undergoing radiative cooling to form stars at the centers of these peaks. However, a mere ~6% of the cosmic energy density of baryonic matter ends up in stars by today. Our theory cannot account for this slow star formation from first principles, and instead invokes an ill-constrained, energetic "feedback" from supernova explosions to heat up nearby gas and expel it from galaxies before it can cool sufficiently to form stars. I will describe our efforts to characterize this feedback using Keck Telescope observations of the mass and motions of cool diffuse baryons around a large sample of galaxies. I will discuss whether these observed gas flows are capable of "solving" the problem of galaxy formation, and what future experiments are required to inform a complete galaxy formation theory.

Refreshments @  
3:30 in 202 NSH