

ASTROPHYSICS SEMINAR SERIES



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12:30 pm - Rm 184 NSH

From observations to origins: Disentangling gas flows in the circumgalactic medium

As much as half of the gas mass in our galaxy's dark matter halo may reside not in the galaxy itself, but in the surrounding area, the circumgalactic medium (CGM). The vast gas content of the CGM, loosely defined as the volume immediately outside the galaxy but inside the dark matter halo, can be broadly classified as originating either in accretion from the intergalactic medium (IGM) or winds from galaxies. Both of these are crucial to the process of galaxy formation: IGM accretion provides the material necessary for observed star formation rates, while galactic winds are linked closely to the regulation of star formation through feedback. Despite their individual importance, differentiating these gas flows in observations is an outstanding problem in studies of the CGM. I will discuss our efforts to address this problem through the use of hydrodynamic galaxy formation simulations on two fronts: mock observations of CGM quasar absorption lines and "particle-tracking" analyses that reconstruct the full history of CGM gas.



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