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# Galactic outflows in observations and simulations: Constraints from diffuse FeII\* emission

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## Abstract

In recent years, evidence has been growing that diffuse emission from non-resonant FeII\* transitions traces galactic outflows. The diffuse FeII\* emission varies with the galaxy ISM, dust content, and outflow geometry, thereby connecting CGM observations with galaxy properties. To constrain the properties that lead to galactic outflows and FeII\* emission, we approach the question with both observations and radiative transfer simulations. From observations, we characterize the emission strength and kinematics for a sample of 270 galaxies at  $z \sim 1$  detected in the MUSE Hubble Ultra Deep Field to interpret trends along the galaxy main sequence. From simulations, we test models with a variety of outflow geometries, velocities, dust contents and gas densities to reproduce the spectra of representative galaxies from the MUSE sample. By combining observations and models of FeII\* emission, we strive to determine characteristic values of galactic outflows and provide informed constraints for simulations of galaxy formation and evolution.

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