

TUESDAY

NOVEMBER 3

12:30 P.M.

RM 184 NSH

Building a Cosmological Abundance Scale

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Tracing galaxy populations over cosmic time is key to understanding their evolutionary processes. The chemical abundances of local galaxies have been well studied, revealing a wealth of information about the processes which produce them, the physical conditions of the nebular gas, and their relationship to the mass and luminosity which characterizes the host galaxy. While nearby low-mass dwarfs ($< 10^8 M_{\text{sol}}$) are relatively easy to study, their faintness and relatively small sizes make them difficult to study in the distant universe. We can overcome this challenge by using strong gravitational lensing, which can amplify the flux of a source by a factor of 30 or more, to study the detailed physical properties of distant galaxies. Interestingly, the best studied objects at cosmological distances have revealed that the physics of distant low-metallicity star-forming galaxies can be very different than their local counterparts.

I will present secure measurements of the physical conditions in individual sources, both near and far, providing insights into the chemical abundance ladder and helping to build a uniform cosmological abundance scale.