Simulating Future Intensity Mapping Fields

Ryan Keenan*[1], Garrett Keating[2], and Dan Marrone[1]

[1]University of Arizona – United States
[2]Harvard-Smithsonian Center for Astrophysics – United States

Abstract

Upcoming line intensity mapping experiments face a number of choices when selecting target lines, redshift ranges, and survey designs. We have developed a tool to simulate observations made in both single dish and interferometric modes. Beginning with the halo catalogues of the IllustrisTNG simulations, we extract light cones and use empirical relations between halo mass, star formation rate, and line luminosity to construct intensity cubes. We can then simulate observations of these cubes with a variety of instrument parameters and field geometries. I will demonstrate the capabilities of this tool by showing a reproduction of the COPSS CO 1-0 measurement and forecasts for the TIM experiment. I will also show models of cross-correlation with galaxy catalogues.

*Speaker