THE INFLUENCE OF ENVIRONMENT ON THE HI MASS FUNCTIONS IN COSMOLOGICAL SIMULATIONS

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Usamos la simulación Illustris para medir el efecto del entorno sobre las funciones de masa de galaxias. Descubrimos, con dos definiciones de entorno de naturaleza distinta, que este afecta el lugar del quiebre de la función de masa gaseosa, mientras que la pendiente a bajas masas no muestra un cambio considerable. Esto muestra un acuerdo con el trabajo de Jones et al.

We use the Illustris simulation to study the effect of environment on gas mass functions. We find that the knee-mass parameter changes in different environment. while the low mass slope does not show any clear change. These results in agreement with previous results by Jones et al.

We use the Illustris Simulation (Vogelsberger et al. 2014) to measure the Schechter functions for the stellar mass. We split the galaxies according to its large scale environment defined by two different criteria. We aim at quantifying the differences in the Schecter parameters as a function of environemtn.

The first environment definition is a computational adaptation of the fourth nearest neighbour method used in an observational study of HI galaxies (Jones et al. 2016). We classify galaxies in four quartiles according to this environment definition and obtained the mass and Schechter functions for each one. Figure shows our results, the environments are ordered from top to bottom.

The second definition of environment is based the Hessian of the gravitational potential (Forero-Romero et al. 2009), or the Tidal Tensor. This method classifies the environment according to the number of eigenvalues of this tensor which are larger than a given threshold. The classification is done into voids, filaments, sheets and clusters. Figure shows the results for this environment classification.

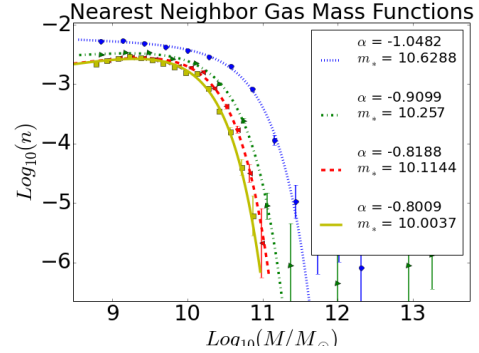Taking into account the uncertainty on the the

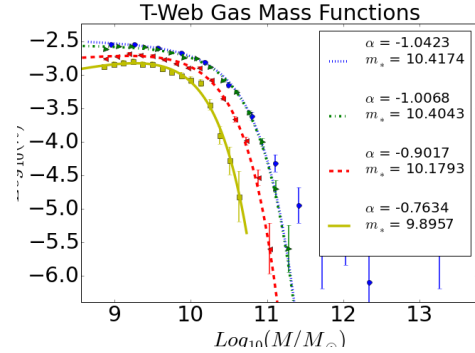Fig. 1. Mass functions with the environment defined from the 4th nearest neighbor

Fig. 2. Mass functions with the environment defined from the Tidal Tensor web classification method.

Schechter parameters we find that the environment has an impact on the knee-mass, while for the faint-end slope we cannot find any change. This result is in agreement with the observational study by Jones et al. 2016.

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