

FAST Proposal Coverpage

Last updated: 02/28/2019

Project Name:

(A 1-line title for your project)

Filament of neutral hydrogen between clusters

Project Summary:

(A 1 paragraph summary of your project, including its scientific goals and how you will address them. This information will be potentially public.)

Filament is the major large-scale structure that is linking the knots (clusters) in the cosmic web. It is believed that sub-halos can form within the filaments and host the formation of small and faint galaxies. Under gravitational collapses, the gas can cool down, recombine and form the neutral hydrogen within these galaxies. We plan to observe the neutral hydrogen content of the gaseous filament in the close pairs of clusters, AELL2572a—ABELL2572 and ABELL2063-MKW3s, and try to measure the HI column density in between these pairs. We aim to provide the first images of the neutral hydrogen map of the close pair of clusters, and derive the HI density profile from the map. This is an important step towards fully understanding the galaxy formation cooling process, and its interplay with hot baryons, dark matter and gravity.