

A Filament Feeding the Virgo Cluster

Abstract

We propose HI imaging of 4 fields distributed along the cosmic filament Virgo III that is connected to the Virgo cluster. These fields comprise galaxies with HI-imaging and thus offer a tracer for the star formation activity of galaxies in filaments. The new observations will be used to comprehensively characterise the properties of neutral hydrogen content. This will be combined with the CO content identified from previous integrated measurements. The MeerKAT spatially resolved images, in combination with a unique set of ancillary data, from the UV to the far-IR, will enable the identification of these physical processes which lead to star formation quenching well before galaxies fall into cluster centres. Our goals will be reached in 24.3 hours including calibration and telescope overheads.