

FAST Proposal Coverpage

Project Name:

Mapping Cygnus-X North in HINSA

Project Summary:

Atomic hydrogen (HI) is the most abundant interstellar medium (ISM) throughout the universe, and the 21cm line being the most important tracer of HI gas. In Galactic molecular clouds, the HI/H₂ ratios is an essential probe of the chemical age and evolutionary stage. Unlike the prevalent emission line, the HI narrow self-absorption (HINSA) feature is associated with cold cloud and free for the contamination from the foreground and background in observational term. We propose to conduct an OTF scan observation towards the Cygnus-X North region in HI 21cm line to map HINSA this overall cold dense molecular cloud complex. The HI column density map produced by such observation will help us to reveal the evolutionary stage of the cloud and also draw clues about how the remarkable filament network revealed by the molecular column density map comes to exist.