

FAST Proposal Coverpage

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Project Name:

Probing Physical Environment of Atomic Gas in the Galactic Plane through Quasar Absorption

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.)

Star forms in interstellar medium (ISM). Understanding evolution of ISM is significant for determining initial conditions of star formation, and thus galaxy evolution. Atomic hydrogen (HI) is a main component of ISM. Quasar absorption is better than 21cm emission in probing cold gas, particularly, in resolving for both excitation temperature and optical depth. Deep HI absorption survey toward 20 continuum sources located in the Galactic plane proposed here will provide some of the most accurate measurements of physical conditions (excitation temperature, optical depth) of cold HI components in the Galactic plane, therefore significantly improve our understanding of ISM evolution.