

# FAST Proposal Coverpage

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## **Project Name:**

A Survey of HI Narrow Self-Absorption (HINSA) in Planck Galactic Cold Cores

## **Project Summary:**

The transition of atomic hydrogen to molecular hydrogen is a crucial process of star formation. Quantifying H<sub>2</sub> formation in space is difficult due to the confusion in the emission of HI and lack of H<sub>2</sub> signal from the cold interstellar medium. We developed a technique, HI Narrow Self-Absorption (HINSA), to directly measure the HI abundance in the molecular cloud. Through a HI absorption survey of Planck Galactic cold cores (PGCCs), which are an excellent sample for studying molecular cloud formation and early phases of star formation, we can statistically derive the properties of HINSA in the Milky way and study the timescale and chemical evolutionary stages of PGCCs systematically.