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Abstract:

The transition process from atomic cloud to molecular cloud is a key step for a galaxy to produce stars. The High velocity clouds (HVCs) provide us an opportunity to dig into this issue. However, molecules still have not been undoubtedly detected in HVCs, especially for those possible intergalactic HVCs located at the high Galactic latitude. We matched the HI4PI survey and Planck dust continuum, and found a HVC G165 having associated HI and dust distributions. We observed G165 in CO 1-0 using PMO 13.7 m and detected possible signals. HI data with better spatial/spectral resolution and higher sensitivity is essential for our follow-up studies. It can help us to valid the detection of CO lines and to unveil the pattern of the transition process from HI to H<sub>2</sub> within G165. Thus, we propose to map the HVC G165 in HI using the FAST.