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Abstract:

Interstellar medium (ISM) is the cradle of star formation, which is critical to galaxy evolution. The ISM distribution is pressure regulated under the canonical phased ISM models. The phases of ISM under extremely low thermal pressure are not well understood yet. HI absorptions toward extra-galactic continuum sources provide a precise method to quantify the physical properties of the atomic gas in the Milky Way. We propose HI absorptions toward 21 extra-galactic sources with Galactic longitude range of [140, 160] degree and Galactic latitude range of [2,4] degree. These observations allow for systematic and quantitative analysis of physical conditions of cold and warm neutral medium in the extended part of Sct-Cen spiral arm, where thermal pressure P/k reaches a extremely low value of ~500 K cm^-3 compared to that of ~3000 K cm^-3 around the Sun.