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Abstract

The physical structure and morphology of the interstellar medium that surrounds our solar system directly effects the heliosphere and the interplanetary environment. High resolution ultraviolet absorption spectra of nearby stars and the intervening interstellar medium, observed by the Hubble Space Telescope, provide important information about the chemical abundance, ionization, temperature, kinematics, density, morphology, and turbulent structures of the local interstellar medium. Fortunately, nearly all observations of nearby stars contain useful local interstellar medium absorption lines. The number of useful observations is large enough that we can start analyzing the local interstellar medium as a three-dimensional object, as opposed to focusing on individual sightlines. We present the results of high resolution observations of nearby gas obtained by the Hubble Space Telescope. Our focus will be on the kinematic, temperature, and turbulent velocity structures in the Local Interstellar Cloud and other nearby clouds. Understanding the physical characteristics of these structures is necessary if we are to discuss the morphology of the local interstellar medium, its evolution, origin, and impact on the heliosphere and our solar system.

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