

Abstract Submitted
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Dark Gas in the Interstellar Medium¹ STEVEN GIBSON, MARY SPRAGGS, Western Kentucky University, JAMES HUGHES, Gatton Academy for Science and Mathematics, BON-CHUL KOO, GEUMSOOK PARK, Seoul National University, GALFA-HI CONSORTIUM COLLABORATION, IGPS CONSORTIUM COLLABORATION — Most of the interstellar material in disk galaxies, including our own, is too warm and tenuous to form new stars. Yet somehow, clouds cold and dense enough to collapse under their own gravity do occasionally coalesce. This mysterious process is enabled by the gas changing from predominantly free atoms to molecules that enhance radiative cooling. Molecular association is not directly observable, and the gas itself is often “dark” to standard probes like spectral line emission from neutral atomic hydrogen or carbon monoxide. But under the right circumstances, this dark gas can be revealed, e.g., as opaque hydrogen emission or absorption, or as infrared continuum radiation from dust grains mixed with hidden molecular hydrogen. We have mapped tracers of such gas over large areas of the Galactic disk at high resolution. We find dark gas clearly revealed in many areas. We present maps of sample features and discuss their properties and relation to Galactic structure.

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