

Dark Molecular Hydrogen

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We present recent developments about the existence and possible forms of molecular hydrogen as a dark component especially in the outer galactic disks, and in LSB galaxies. In a first part we discuss two recent works (Revaz & Pfenniger 2004, and Pfenniger & Revaz 2004) where dark matter appears required in the outer disks of spirals for dynamical reasons imposed by warps and from a rediscussion of the baryonic Tully-Fisher relation. In a second part we present work in progress (Pfenniger in prep.) about the possible forms that molecular hydrogen may adopt in cold outer disks. Mainly the condensation of molecular hydrogen in solid or liquid form opens new possibilities on the evolution of collapsing cold gas in the ISM that differs from star formation. Gas globules stabilized by a Earth-sized liquid or solid core of molecular hydrogen are possible long-lived structures derived from our computations.

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