

[☞IM-25] Herschel FIR Observations of Molecule Lines in L1448-MM

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L1448-MM, known as a class 0 YSO with a prominent outflow, was observed with the Photodetector Array Camera and Spectrometer (PACS) aboard Herschel Space Observatory by the key program, DIGIT (Dust, Ice, Gas in Time, PI: Neal Evans). The PACS covers various molecular and atomic line transitions such as CO, OH, H₂O, [OI], and [CII] at wavelengths from 55 to 210 μm . The line emission of H₂O, [OI], mid-J CO, and the OH fundamental transition distributes along the outflow direction although high-J CO and other OH emission peaks at the central spatial pixel. According to our excitation analysis, the CO gas has two temperature components: 300 K and 750 K, which are attributed to PDR and shock, respectively. However, the H₂O gas with the rotation temperature (T_{rot}) of 200 K seems only affected by shock. Interestingly, the relative strength of OH transitions suggests the IR pumping process in L1448-MM. We also mapped L1448-MM in CO J=2-1 with the SRAO 6m telescope to compare with the FIR line transition maps.

[☞IM-26] Simulating Rotation Measure toward High Galactic Latitude

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We investigate Faraday rotation measure (RM) toward high Galactic latitudes due to the Galactic magnetic field (GMF). The Galactic contribution to RM comes from the global component and the turbulent component of the GMF, and we newly model the latter by incorporating data of MHD turbulence simulations. We find that for the turbulent velocity of ~ 50 km/s, the standard deviation of the RM due to the GMF toward high Galactic latitudes is close to the observed value, several rad m^{-2} . Yet, the predicted second-order structure function (SF) has values substantially smaller than the observed ones at separation angles of $< \sim$ several degree. This suggests that the intergalactic magnetic field (IGMF) significantly contributes to RM toward high Galactic latitudes, particularly at small angular scales. Our work proposes a strategy for surveys to explore the IGMF with LOFAR, ASKAP, MeerKAT, and SKA.