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TITLE: Cold water and ammonia vapor in the disks around TW Hya and HD100546

ABSTRACT BODY:

Abstract Body: The emission of rotational groundstate water vapor is detected in the disks around TW Hya and HD100546. We present the Herschel/HIFI detection spectra and discuss the location of the water vapor in these disks. The amount of water vapor is derived using model calculations, and depends on its vertical location and the corresponding mechanism that releases the water from icy grains. This can be be photodesorption by stellar ultraviolet photons in the upper disk layers or could be the result of grain erosion or shattering of icy bodies in the midplane. We discuss the likelihood of these mechanisms. In addition, rotational groundstate emission of NH_3 is detected toward TW Hya but not HD100546. In the former source, the detection is consistent with a NH_3/H_2O ratio of a few %.

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