

Cooling in the Whirlpool Galaxy

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★ we compare *Herschel* PACS spectroscopy of important far-infrared cooling lines to the PDR model of Kaufman et al. (1999) to diagnose the physical properties of the gas component in M51

★ we find that the $[CII]/L_{TIR}$ ratio is in agreement with those of the Malhotra et al. (2001) sample

★ we find that the strength of radiation field, G_0 , is in agreement with that determined by Mentuch Cooper et al. (2012) using dust SED modelling

