GAS CELL OBSERVATIONS OF METHANOL FROM 0.6 TO 1.9 THZ USING THE HERSCHEL SPACE OBSERVATORY HIFI INSTRUMENT

RONAN D. HIGGINS, *Department of Experimental Physics, National University of Ireland, Maynooth, Co. Kildare, Ireland*; JOHN C. PEARSON, *Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA 91109, USA*; STEVE D. LORD, *NHSC, California Institute of Technology, Pasadena, CA 91125, USA*; DAVID TEYSSIER, *Herschel Science Centre, European Space Astronomy Centre (ESAC), 28691 Villanueva de la Cañada, Madrid, Spain*.

The Herschel HIFI instrument, in its ground testing, collected over 6000 spectra of methanol (with natural terrestrial isotopic abundance). These data were gathered primarily to validate the instrument's spectroscopic functionality and proper operation. They have a secondary benefit of increasing the database of methanol lines. Furthermore, the data has enormous and largely untapped potential for a fundamental spectroscopic investigation. We present the analysis of this broad range of methanol spectra and detail the instrument effects seen. Additionally we detail the new insight into the torsional states and self-broadening characteristics of methanol.