



## Herschel Observations of Comet 103P/Hartley 2

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Comet 103P/Hartley 2 was observed from October 20 to November 17, 2010 during its perihelion passage with the HIFI, PACS and SPIRE instruments on the Herschel Space Observatory within the guaranteed time key programme "Water and related chemistry in the Solar System". 103P/Hartley 2 made a very close approach to the Herschel satellite of 0.11-0.21 AU during these observations, allowing for the detection of numerous H<sub>2</sub>O lines and several H<sub>2</sub>-D<sub>2</sub>O lines with the three instruments. We report our results on the outgassing and the measurement of the D/H ratio in the comet, obtained from almost simultaneous H<sub>2</sub>O and HDO HIFI observations. The kinematics of the outgassing and water excitation are characterized by mapping observations. The dust thermal emission from the coma is detected by PACS and SPIRE. The Spectral Energy Distribution from 70 to 672 micrometers provides constraints on the dust size distribution and dust production rate.