

High resolution ISO-LWS observations of [OI] in absorption towards Sagittarius B2

C. Vastel, CESR, BP4346, 31028 Toulouse Cedex 04, France, vastel@cesr.fr

E.T. Polehampton, Oxford University and RAL, United Kingdom

B.M. Swinyard, RAL, United Kingdom

J.P. Baluteau, LAS, Marseille

The 63 μm fine structure line of atomic oxygen has been observed towards Sagittarius B2 at high resolution by the ISO *Long Wavelength Spectrometer*. Absorption is seen both due to Sgr B2 itself and from material in the line of sight.

The contribution to the absorption by [OI] associated with diffuse atomic clouds in the line of sight is predicted. Published HI 21 cm observations are used with an assumed galactic gradient for O/H to calculate the [OI] optical depth in these clouds. When these components are convolved with the LWS spectral response function they are found to account for only a small fraction of the total observed absorption.

The discrepancy in absorption is made up by fitting [OI] optical depths in cold molecular clouds. H₂CO 6 cm observations from the literature are used to give the line widths and velocities of molecular components. [OI] optical depths are then fitted to the observed absorption. Column densities of [OI] are calculated from these optical depths giving the total column density in the line of sight molecular clouds as $1.1 \times 10^{20} \text{ cm}^{-2}$.