ISO LWS Spectroscopy of the Diffuse Interstellar Medium

E. Caux[1] and C. Gry[2,3]

[1] Centre d'Etude Spatiale des Rayonnements, BP 4346, F31028 Toulouse Cedex 04, France
[2] Laboratoire d'Astronomie Spatiale, BP 8, F13376 Marseille Cedex 12, France
[3] ISO Science Operation Center, P.O. Box 50727, 28080 Madrid, Spain

Abstract

We present an analysis of the diffuse interstellar medium (ISM) line emission. We used 61 observations of the LWS guaranteed time programs on cirrus (10), galactic lines of sight (15) and off positions of stellar observations (36). At least four lines are detected in most of the lines of sight: [$CII_{158\mu m}$], [$OI_{63\mu m}$], [$OI_{145\mu m}$] and [$NII_{122\mu m}$]. The [CII] emissivity computed for high latitude lines of sight is 3.3 ($\pm$ 0.3) $10^{-26}\ erg\ s^{-1}\ (Hatom)^{-1}$. The comparison of the [CII] and the [$OI_{63\mu m}$] intensity with the IRAS 12μm intensity shows that the gas heating in the diffuse ISM is enhanced by the photoelectric emission of the PAH's.