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Importance of the molecular photo-destruction cross sections to model the ISM

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To better understand how stars could form, it is crucial to model accurately the physical and the chemical properties of the galactic interstellar medium (See [1], [2] and [3]). To perform it, I used the Photo-Dissociation Region (PDR) code developed in Meudon (see [4] and [5]). Moreover, the knowledge of the molecular features as their photo-destruction cross sections values is also required to make trustworthy predictions not only in term of molecular abundances but also to correctly estimate their photo-destruction rates. I focussed my study on the photo-dissociation and the photo-ionisation of the following species : C_2, C_3, CO, CH, OH, NH and CN for which I gathered from the literature new values.
I will present here the results I obtained and the implication of these updated photo-destruction cross sections values in term of PDR predictions.

[1] Bayet et al., 2004, A&A, 427, 45
[2] Bayet et al., 2006, A&A, accepted
[3] Kramer et al., 2005, A&A, 441, 961
[4] Le Petit et al., 2006, ApJS, 164, 506
[5] Le Petit et al., 2002, A&A, 390, 369