

Simulating a FIRST sight: spectral line surveys at THz frequencies

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The Far InfraRed and Submillimeter Telescope will soon start producing copious amounts of data. By that time, we will have to be prepared to handle and analyse them properly. With this in mind, we are currently producing synthetic spectra of high-frequency molecular line emission towards star forming regions in order to simulate observations with the FIRST HIFI instruments, and implement a proper data reduction software. As, at THz frequencies, galactic sources are often spatially resolved, and small pointing offsets can produce important variations in the spectral features, the spatial distribution of the different chemical species is also taken into account. In this poster we will focus on the well-known Orion-KL region. These simulations make use of the JPL catalog data, as well as of the molecular abundances deduced for this source through unbiased line surveys at submm wavelengths (Schilke et al. 1997 and 2000). The introduction of the chemical differentiation in a simulation program will be a step towards a much more ambitious project, that of fitting whole spatially resolved line surveys.

References:

Schilke, P., Groesbeck, T.D., Blake, G.A., Phillips, T.G. 1997, ApJS, 108, 301

Schilke, P., Benford, D.J., Hunter, T.R., Lis, D.C., Phillips, T.G. 2000, to appear in ApJS