

A sensitive spectral survey of Orion KL at wavelengths between 6 and 7 mm

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Abstract

The close star-forming region Orion KL is one of the richest molecular reservoirs known in our Galaxy. The region hosts newly formed protostars, and the strong interaction between their outflows and the environments results in a series of complex chemical processes currently carrying out. The region is therefore one of the most observed sources, and the site where many molecular species have been discovered for the first time. With the availability of powerful wideband backends, it is nowadays possible to conduct complete spectral surveys in all the mm range. In this contribution we present a sensitive spectral survey of Orion KL, done with one of the 34m antennas of the Madrid Deep Space Communications Complex in Robledo de Chavela. The region surveyed is from 41.5 to 50 GHz, with a velocity resolution of 1.2 km s^{-1} . The rms achieved is less than 5 mK. This is the most sensitive survey at this frequency range, and also the one with the widest band. We also present the results of radiative modeling of all the molecular species present in the survey, which are detected by more than 200 rotational lines.