CHEMICAL HERSCHEL SURVEYS OF STAR FORMING REGIONS (CHESS)

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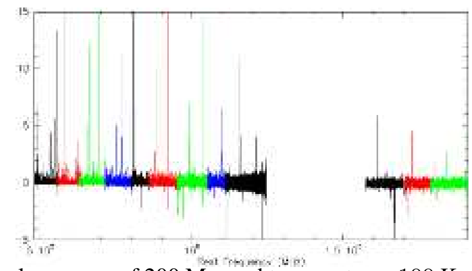

CHESS is an unbiased line survey of low-, intermediate-, and high-mass star forming regions at different stages of their evolution. The eight sources in the CHESS program are observed with the HIFI instrument on board of the Herschel Space Telescope, which provides a high spectral resolution (R$\sim$ 10^6) and covers a frequency range from 480 to 1910 GHz. The objective of CHESS is to study the chemical composition and physical conditions in star forming regions and their variation with mass and evolutionary stage. To date about 50% of the program have been completed.

One of the eight objects in the CHESS program is the hot core NGC 6334 I. With an envelope mass of 200 $M_\odot$ and temperatures 100 K, NGC 6334 I is very line rich. In this object emission lines of more than 40 species have been identified, including first detections of H_2Cl^+ (Lis et al. 2010) and H_2O^+ (Ossenkopf et al. 2010). Furthermore, several lines of ortho and para water and ammonia have been detected, allowing to determine the ortho/para ratio of these crucial species. In addition many hydrides (HF, CH) and hydride ions (SH^+, OH^+, CH^+) have been found.

In the low mass protostar IRAS 16293-2422, another source of our sample, several deuterated species, including the first detection of ND (Bacmann et al. 2010), were found. The data allowed also the first determination of the ortho/para ratio of D_2H^+ (> 2.6) (Vastel et al. 2010).

In this talk I will give a summary of the conducted observation and highlight the most important results.