Star formation in the Planck ECC cold clumps

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The Planck Surveyor satellite is suitable for the systematic detection of cold cloud cores. It provides an all-sky survey in 9 channels from 350 µm to 1 cm. The Cold Clump Catalogue of Planck Objects (C3PO) is the first all-sky catalogue of cold objects. It contains e.g. compact isolated clouds, prestellar cores in molecular clouds and dark clouds.

The Early Cold Core (ECC) sample is a high reliability sub-sample of the C3PO catalogue. It contains 915 objects over the whole sky. [1]

We made a detailed analysis of far infrared point sources in the vicinity of ECC objects in the Taurus-Auriga-Perseus and Orion star-forming regions. 179 cold cores are inside this region.

The point source analysis was based on AKARI [2] Far-Infrared Surveyor (FIS; [3]), Spitzer Space Telescope (SST; [4]) Infrared Array Camera (IRAC; Fazio [5]), Mid-Infrared Photometer for Spitzer (MIPS; [6]) and Wide-Field Infrared Survey Explorer (WISE; [7]) and various other photometric data.

We located young stellar objects (YSOs). We successfully determined the physical parameters (e.g. stellar mass, temperature and radius, disk size and mass) of about 150 YSOs with the SED Fitting Tool of Robitaille et al. [8]. For further sources we could determine evolutionary stages with far infrared photometric data.

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[4] M. W. Werner et al., *ApJS*, **2004**, *154*, 1
[5] G. G. Fazio et al., *ApJS*, **2004**, *154*, 10
[6] G. H. Rieke et al., *ApJS*, **2004**, *154*, 25
[7] E. L. Wright et al., *AJ*, **2010**, *140*, 1868
[8] T. P. Robitaille et al., *ApJS*, **2007**, *169*, 328