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The Accretion Discs in Halpha with OmegaCAM (ADHOC) Survey

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We recently concluded the Accretion Discs in Halpha with OmegaCAM (ADHOC) survey aimed at studying the population of Pre Main Sequence (PMS) objects in a number of close-by star forming regions. As part of the survey, we imaged in r, i and H-alpha a region of 12×8 square degrees around the Orion Nebula Cluster. Thanks to the high-quality photometry obtained, we discovered three well separated PMSs in the colour-magnitude diagram towards the cluster's center. Although several reasons could be invoked to explain these sequences including unresolved binaries, independent high-resolution spectroscopy supports the interpretation that these correspond to discrete episodes of star formation, each separated by about a million years. Our observations reveal that these star-forming events occurred in the densest central regions of the cloud. The stars from the two youngest populations rotate faster than the older ones, in agreement with the evolution of stellar rotations observed in PMS stars younger than 4 Myr in several star forming regions. These results prompt for a revised look at the formation mode and early evolution of stars in clusters.

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