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Substellar companions in the Orion Nebula cluster

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Young binary stars provide us with perfectly coeval pairs of stars, born in the same environment and with the same metallicity. Comparing their properties may thus provide key information on the early stages of stellar evolution, and constrain theoretical models developed to predict isochrones and evolutionary tracks during the Pre-Main-Sequence. We present new results relative to the population of substellar the binaries in the Orion Nebula Cluster. We studied HST data using a new analysis methods recently developed to detect close companions in the wings of the stellar PSF, in particular the pyKlip library of python modules. Starting from a sample of ~ 1000 individual stars (selected over a range of 11-15 mag), we were able to find ~ 60 candidates in a magnitude range of 16 - 23 mag; we use the presence of the 1.4 micron H2O absorption feature in the atmosphere to discriminate between substellar companions and more massive background objects

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