Jeudi 13 juin 2019 à 11h30 (IAS, bâtiment 121, salle 1-2-3)

Exploiter l'état de l'art de l'imagerie directe d'exoplanète : analyse d'observation SPHERE en combinant modélisation auto-consistante et résolution du problème inverse

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The characterisation of the exoplanets evolved recently thanks to the development of the second generation of direct imaging instruments, especially SPHERE. The resolution and wavelength range available now gives access to an increase in accuracy and in the number of physical parameters that can be constrained. SPHERE observations are a combination of narrow band filters between J and K and spectroscopy between Y and H. We first show how a forward model (Exo-REM) may be used to obtain the physical parameters of the target. Then we use the results of this first approach as an a priori for the retrieval code (NEMESIS) on the same dataset. We also apply a Nested Sampling version of NEMESIS complementary to the more traditional Optimal Estimation mode We compare the results of the various approaches highlighting the advantages of each. We give the resulting physical parameters constrained by these approaches to show what SPHERE can determine alone in terms of exoplanet characterisation.