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Title: *"On the stability of 3D planetary system configurations"*

Abstract. To date, more than 600 multiple planet systems have been discovered. Due to the limitations of the detection methods, our knowledge of the systems is usually far from complete. In particular, for planetary systems discovered with the radial velocity technique, the inclinations of the orbital planes (and thus their mutual inclinations and masses) are unknown. Our work aims to constrain the observations of several non-resonant extrasolar systems. Through analytical analysis based on a first-order secular hamiltonian expansion and numerical explorations performed with a chaos detector (MEGNO), we identify ranges of values for the mutual inclinations which ensure the long-term stability of the system. Particular attention is also given to determine the possibility of the detected extrasolar systems to be in a Lidov-Kozai resonant state.

Joint work with A.-S. Libert.