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Title: *"AMD-stability in presence of mean-motion resonances"*

Abstract. The AMD-stability criterion allows to discriminate between a-priori stable planetary systems and systems for which the stability is not granted and needs further investigations (Laskar 2000, Laskar & Petit 2017). AMD-stability is based on the conservation of the Angular Momentum Deficit (AMD) in the averaged system at all orders of averaging. While the AMD criterion is rigorous, the conservation of the AMD is only granted in absence of mean-motion resonances.

Here we extend the AMD-stability criterion to take into account mean-motion resonances, and more specifically the overlap of first order mean-motion resonances (MMR). If the MMR islands overlap, the system system will experience generalized chaos leading to unstability. Following the work of (Chirikov 1979; Wisdom 1980; Deck et al. 2013), we compute the phase space areas where MMR overlap. We then improve the definition of AMD-stability to take into account the short term chaos generated by MMR overlap. We analyse the outcome of this improved definition of AMD-stability on the classification proposed in (Laskar & Petit 2017) on selected multi-planet systems from the Extrasolar Planets Encyclopeadia (www.exoplanet.eu).

Joint work with Laskar, J., Boué, G.