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## Asynchronous and chaotic rotation for compact planetary systems

Alexandre C. M. Correia<sup>1,2</sup> and Jean-Baptiste Delisle<sup>3</sup>

<sup>1</sup>CFisUC, Department of Physics, University of Coimbra, Coimbra, Portugal (acor@uc.pt)

<sup>2</sup>ASD, IMCCE, Observatoire de Paris, PSL Université, 77 Av. Denfert-Rochereau, 75014 Paris, France

<sup>3</sup>Observatoire de l'Université de Genève, 51 chemin des Maillettes, 1290 Sauverny, Switzerland

We study the spin evolution of close-in planets in compact multi-planetary systems. The rotation period of these planets is often assumed to be synchronous with the orbital period due to tidal dissipation. Here we show that planet-planet perturbations can drive the spin of these planets into non-synchronous or even chaotic states. These asynchronous configurations are possible even for nearly circular orbits and will impact the habitability of these planets. We also present a very simple method to probe the spin dynamics from the orbital perturbations.