

ASTEROID BELT AND THE FAST LYAPUNOV INDICATOR

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Abstract. Computing the Fast Lyapunov Indicator (FLI) is one of the fastest numerical ways to detect the stability properties of a given orbit. FLI quickly discriminates not only between stable and chaotic motion, but also between weak and strong chaos, as well as between regular motions inside and outside of a resonance. With such sensitivity, FLI is very convenient for the evaluation of dynamical maps, providing structural information of a given system, and a good starting point in further investigations of its dynamics. However, despite its efficiency, FLI was mostly used to detect structures in simplified and idealized systems, but rarely to study dynamics of the "real world". Therefore, we are interested to evaluate FLI maps able to show dynamical structures in our Solar System. The FLIs are determined from numerical integrations by using a model that includes seven planets (from Venus to Neptune). According to our results, we can say that once again FLI has shown its efficiency to detect structures in the Main Belt, with a surprisingly high clarity.

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