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Title: *"Impact of Yarkovsky Effect and Mean-Motion Resonances on Main Belt Asteroid's Transport"*

Abstract. The long-term dynamics of main belt asteroids is governed by complex interaction among the gravitational and non-gravitational phenomena. A detailed study about this interaction has not been performed yet. The most important gravitational mechanisms are orbital resonances and the most important non-gravitational effects are the Yarkovsky and the Yarkovsky-O'Keefe-Radzievskii-Paddack forces. This motivated us to study the effect of different mean-motion resonances (MMRs) on the mobility of an asteroid's semimajor axis due to the Yarkovsky effect. We established our findings about the effect of 11 two-body MMRs with Jupiter, on the mobility of an asteroid's semimajor axis caused by the Yarkovsky effect. This study was accomplished using numerical integrations of test particles. The obtained results revealed that MMRs could either speed up or slow down the drift in the semimajor axis. Moreover, this allowed us to determine the distribution that represents the best data obtained for time delays, dtr, caused by the resonances on the mobility of an asteroid. We found a certain functional relationship that describes dependence of the average time lead/lag <dtr> on the strength of the resonance, SR, and the semimajor axis drift speed, da/dt. As the Yarkovsky effect scales as 1/D, an important consequence of this relationship was that average time lead/lag <dtr> is directly proportional to the diameter D of an asteroid. Also, we analyzed how the time spent inside the resonance depends on orbital eccentricity, and proposed the relation that taking this parameter into account as well.

Joint work with Bojan Novakovic.