1. Record Nr. UNINA9910813201103321 Autore Pinzari Gabriella <1966-> Titolo Perihelia reduction and Global Kolmogorov tori in the planetary problem // Gabriella Pinzari Pubbl/distr/stampa Providence, Rhode Island:,: American Mathematical Society,, [2018] ©2018 **ISBN** 1-4704-4813-0 1 online resource (104 pages) Descrizione fisica Collana Memoirs of the American Mathematical Society;; Number 1218 Disciplina 521 Celestial mechanics Soggetti Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali "September 2018. Volume 255. Number 1218 (first of 7 numbers)." Includes bibliographical references. Nota di bibliografia Nota di contenuto Background and results -- Kepler maps and the Perihelia reduction --The P-map and the planetary problem -- Global Kolmogorov tori in the planetary problem -- Proofs. Sommario/riassunto The author proves the existence of an almost full measure set of (3n-2) -dimensional quasi-periodic motions in the planetary problem with (1+n) masses, with eccentricities arbitrarily close to the Levi-Civita limiting value and relatively high inclinations. This extends previous results, where smallness of eccentricities and inclinations was assumed. The guestion had been previously considered by V. I. Arnold in the 1960s, for the particular case of the planar three-body problem, where, due to the limited number of degrees of freedom, it was enough to use the invariance of the system by the SO(3) group. The proof exploits nice parity properties of a new set of coordinates for the planetary problem, which reduces completely the number of degrees of freedom for the system (in particular, its degeneracy due to rotations) and, moreover, is well fitted to its reflection invariance. It allows the explicit construction of an associated close to be integrable system, replacing Birkhoff normal form, a common tool of previous literature.