RESONANT ASTEROIDAL MOTION IN THE KIRKWOOD GAPS : A THREE-DIMENSIONAL STUDY

H. SCHOLL(*) and C. FROESCHLE(**)

(*) Astronomisches Rechen Institut
Heidelberg, F.R. Germany

(**)Observatoire de Nice, France

ABSTRACT

Resonant asteroidal motion is investigated over 17 000 years in a three-dimensional elliptical model Sun-Jupiter-Asteroid averaged by Schubart's method à la Poincarè. Orbits remain trapped in the resonance over this period. The various stability mechanisms are discussed. With respect to their behaviour of ω and $\tilde{\omega}$, our resulting orbits reveal 5 distinct classes. These 5 classes can be described in Schubart's topology for the planar problem. As compared to the planar case, eccentricities of orbits in the three-dimensional model vary more strongly. This is an important result for the problem of the delivery of meteorites.

V. V. Markellos and Y. Kozai (eds.), Dynamical Trapping and Evolution in the Solar System, 163.