

28th SUMMER SCHOOL-CONFERENCE ON DYNAMICAL SYSTEMS  
AND COMPLEXITY, CHANIA, CRETE, 18 - 26 JULY 2022

## Rotation of Celestial Bodies and its Role in the Development of Chaos Theory

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Starting from the work of J. Wisdom in the 80's [1], the problem of mathematically understanding the rotational motion of celestial bodies (planets, satellites or asteroids) under the presence of gravitational tidal torques has been a central question leading to the development of many tools extensively used in present-day chaos theory, such as the scaling laws of the resonance overlap criterion and the the analysis of the fundamental frequencies proposed by Laskar [2]. The presentation will address a basic review on the topic, along with some modern applications, as for example, in the case of the DART-Hera missions which will provide a first human impact experiment on a double-asteroid (Didymos-Dimorphos) system [3].

### References

- [1] J. Wisdom and S.J. Peale, *Icarus* **58**, 137, (1984).
- [2] J. Laskar, *Icarus*, **88**, 266, (1990).
- [3] H.F. Agrusa, I. Gkolias, K. Tsiganis, D.C. Richardson, A.J. Meyer, D.J.Scheeres, M.A. Jacobson, P. Michel, Ö. Karatekin, A.F. Cheng, M. Hirabayashi. Y. Zhang, E.G. Fahnestock, A.B. Davis, *Icarus*, **370**, 114624, (2021).