THE WEAK BOUNDARY BETWEEN THEORETICAL AND APPLIED MATHEMATICS IN SPACE SCIENCE

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ABSTRACT. Very often, mathematical theories have been deeply motivated by questions arising in Celestial Mechanics and Astrodynamics. Among the others, perturbative methods, KAM theory, Nekhoroshev theorem. On the other hand, the study of the dynamics of celestial objects often requires a delicate balance between theoretical and numerical methods, nowadays including also machine learning techniques.

In this context, I will illustrate some sample cases, among which the Earth's satellite stability, the space debris dynamics and the construction of interplanetary highways.

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