



Seminario de Matemáticas

Collisions, variational regularization and stability in Celestial Mechanics

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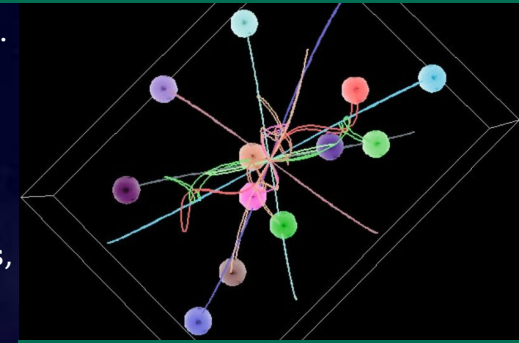
Río Hondo #1, Col. Progreso Tizapán,

México D.F., CP 01080

Celestial mechanics is an object of study and inspiration for mathematicians and astronomers. The initial goal was to explain the motion of the Sun, the Moon and planets and to study its stability. The stability of the solar system is one of the oldest problems in theoretical physics, dating back to Isaac Newton. After Newton discovered his famous laws of motion and gravity, he used these to determine the motion of a single planet around the Sun and showed that the planet followed an ellipse with the Sun at one focus. The puzzle posed by Newton is whether the net effect of these periodic forces on the planetary orbits averages to zero over long times, so that the planets continue to follow orbits similar to the ones they have today, or whether these small mutual interactions gradually degrade the regular arrangement of the orbits in the solar system, leading eventually to a collision

between two planets,
the ejection of a planet
to interstellar space, or perhaps the
incineration of a planet by the Sun.

The goal of this talk is to discuss the role of the singularities and their importance in order to penetrate the intricate global dynamics of the problem main related to the existence of (non) collision trajectories. Finally we show some recent (in)stability results of a plethora of periodic motions and of collision orbits via symplectic techniques.



Viernes 18
Septiembre

13:00 hrs
Salón B3

ENTRADA
LIBRE