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SEMINARIO DEL DEPARTAMENTO DE MATEMÁTICA Y FÍSICA APLICADAS
FACULTAD DE INGENIERÍA

“From the 2-Body Problem to Keplerian systems. A new approach to reductions”

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Abstract:

We present symmetries and reductions of Keplerian systems by means of orbital elements, contributing to clarify its use in Astrodynamics. We use coordinates for the orbit space $\mathbb{S}_L^2 \times \mathbb{S}_L^2$ of bounded Keplerian orbits with a given semimajor axis, which are an alternative to Cartan coordinates. They have the property of ‘separating’ the orientation of the orbital plane from the position of Laplace vector in that plane. Considering the momentum mappings, these coordinates allow to illustrate, in a straightforward manner, how to carry out a second reduction for the singular case.

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