UNIVERSIDAD DE LOS ANDES

The three-body problem in the spherical geometry

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Abstract

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In this document an insightful formalism for the study of the planar three-body problem by Botero and Leyvraz is reproduced with the objective to be mapped to its spherical counterpart. We deduced that a straightforward analogue is not trivial and studied the advantages and flaws of the Cartesian, spherical and stereographic coordinates in terms of feasibility of the aforesaid mapping. We discovered that the most suitable set of coordinates, with which a very similar analogue of Botero's formalism can be deduced, is the stereographic projection, due to its nature and the obtained results. However, the spherical analogue of the studied planar three-body problem was demonstrated to be not obvious nor simple. We leave the proper study of this map for future work.

Full document in english can be found on:
https://github.com/jdprada1760/Thesis/blob/master/Document/Thesis.pdf