

Geometric Motion in an N-Dimensional Inverse Square Potential.

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ABSTRACT

Classical motion under an attractive N-dimensional inverse square potential is shown to be equivalent to free motion on a phase space manifold, showing in this way that the problem is geometric as it is known to happen in the N- dimensional Kepler problem. We solve the quantum version of the problem in momentum space establishing the non-existence of a discrete spectrum at negative energies. The symmetry of the problem is found and shown to be broken.