The Kepler and Harmonic Oscillator Problems on Families of Coadjoint Orbits

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ABSTRACT

In this talk I will present suitable generalizations of the Kepler and harmonic oscillator problems over the global family of deformations of a certain extension of the Heisenberg Lie algebra, with the Grassmannian of oriented planes as its generic underlying phase space. The characteristic features of both integrable systems are the intrinsic dynamical "hidden" symmetries corresponding, respectively, to the groups SO(n+1) and SU(n). This is joint work with Jacob Mostovoy.