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Title:
Infinite-dimensional Marsden-Weinstein reduction in quantum mechanics

Abstract:

This talk aims to introduce the theory of infinite-dimensional manifolds and to provide a rigorous approach to several mathematical and physical models using this theory. In particular, special attention is paid to the infinite-dimensional Marsden-Weinstein reduction and its application to the study of reduction process of a separable Hilbert space onto its projective one. Our new approach intends to describe the reduction of Schrödinger equation determined by time dependent self-adjoint operators, onto the projective space. In contrast to other approaches in the literature, our techniques are based upon generalisations of methods from functional analysis to differential geometry.