Kriegl, Andreas; Michor, Peter W.
Regular infinite dimensional Lie groups. (English) Zbl 0893.22012

The authors define and explicate the basics of a theory of “Regular Lie Groups”. These are groups which are manifolds based upon convenient locally convex vector spaces whose operations are differentiable in a natural sense and which have additional structure sufficient to guarantee the existence of an exponential map from a neighborhood of zero in the Lie algebra onto a neighborhood of the identity element in the group. The paper is self-contained and provides a nice introduction to the convenient space setting for calculus and differential equations as well as the Lie group material.

Reviewer: J.P.Holmes (Auburn)

MSC:
22E65 Infinite-dimensional Lie groups and their Lie algebras: general properties
58B25 Group structures and generalizations on infinite-dimensional manifolds
53C05 Connections (general theory)

Keywords:
infinite dimensional Lie groups; diffeomorphism groups; regular Lie groups; manifolds; exponential map; Lie algebra

Full Text: arXiv EuDML