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Differential equations on infinite-dimensional Lie groups: regularity questions

by

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Abstract

Let G be a Lie group modelled on a locally convex space, with neutral element e and Lie algebra $g := T_e(G)$. If each C^k-curve $c : [0,1] \to g$ arises as the left logarithmic derivative of a C^{k+1}-curve $Evol(c)$ in G starting at e, then G is called C^k-semiregular. If, moreover, the map $Evol : C^k([0,1], g) \to C^{k+1}([0,1], G)$ is smooth, then G is called C^k-regular. I'll report on recent results concerning these regularity properties and related ones (when $C^k([0,1], g)$ is replaced with a suitable space of measurable functions).

References

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