Title: Differentiable loops on the real line

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The paper is devoted to the study of differentiable loops L on the real line such that the group G topologically generated by the left translations is locally compact and hence it is isomorphic to the universal covering group of $PSL_2(\mathbb{R})$. Using the methods developed in [**?**] we introduce a class of natural parametrizations of the loop manifold L corresponding to the Iwasava decompositions of G and find explicit expressions for the loop multiplication with respect to the given parametrizations. We characterize the differentiable curves $\mathbb{R} \to G$ consisting of the left translations of a loop L in the biinvariant Lorentzian geometry of G.

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