

Ricci solitons on solvable Lie groups

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Abstract

In this work we consider the solvable Lie group, equipped with any left-invariant metric, either Riemannian or Lorentzian. The existence of non-trivial (i.e., not Einstein) Ricci solitons on both Riemannian and Lorentzian in five-dimensional solvable Lie group and in three-dimensional solvable Lie group is proved. Moreover, we show that there are no gradient Ricci solitons.

Mathematics Subject Classification : 35C50, 53B30.

Keywords: Solvable Lie group, Ricci soliton, Left-invariant metrics, Lorentzian metrics, Riemannian metrics.

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