1154-22-1974 **Manoj B Karki*** (`mbkarki@pvamu.edu`), Prairie View A&M University, Department of Mathematics MS 2250, W.R. Banks Building, Suite 333 P.O. Box 519, Prairie View, TX 77446, and **Gerard Thompson**. *Four-dimensional Einstein Lie groups.*

Abstract. Index formulas for the curvature tensors of an invariant metric on a Lie group are obtained. The results are applied to the case of solvable Lie algebras that have a codimension one Abelian nilradical. It is argued that such algebras are associated with Einstein metrics only when the metric is of constant negative or zero curvature. Thereafter, all of the four-dimensional Lie algebras are examined with regard to the question of whether they correspond to Einstein metrics. For algebras that are not of the type solvable with codimension one Abelian nilradical, the space of derivations is found and used to reduce the metric and the Ricci tensor is calculated. It is then possible to say precisely which metrics are Einstein spaces. In the indecomposable case precisely four such Einstein spaces are obtained. Two of them are spaces of constant curvature. No examples are found in the decomposable case. (Received September 16, 2019)

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