Invariant Einstein Metrics on Some Homogeneous Spaces of Classical Lie Groups

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Abstract. A Riemannian manifold \((M, \rho)\) is called Einstein if the metric \(\rho\) satisfies the condition \(\text{Ric}(\rho) = c \cdot \rho\) for some constant \(c\). This paper is devoted to the investigation of \(G\)-invariant Einstein metrics, with additional symmetries, on some homogeneous spaces \(G/H\) of classical groups. As a consequence, we obtain new invariant Einstein metrics on some Stiefel manifolds \(SO(n)/SO(l)\). Furthermore, we show that for any positive integer \(p\) there exists a Stiefel manifold \(SO(n)/SO(l)\) that admits at least \(p\) \(SO(n)\)-invariant Einstein metrics.

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