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Reducibility of G -invariant linear connections in principal G - bundles. (English)

Zbl 0806.53026

Szente, J. (ed.) et al., Differential geometry and its applications. Proceedings of a colloquium, held in Eger, Hungary, August 20-25, 1989, organized by the János Bolyai Mathematical Society. Amsterdam: North- Holland Publishing Company. Colloq. Math. Soc. János Bolyai. 56, 231-252 (1992).

The aim of this paper is to determine under which conditions a G - invariant linear connection on a principal G -bundle contains both a principal connection and a linear connection in the base manifold. The authors consider the so-called totally vertical linear connections and dimensionally reducible connections on a G -bundle. Then, assuming that G is a reducible subgroup of some linear group, they prove that a totally vertical linear connection is dimensionally reducible under some regularity conditions. The special case $G = U(1)$ and the general case occur in a coordinate language in other papers of the same authors [Boll. Unione Mat. Ital., VII. Ser., B 4, No. 4, 905-926 (1990; Zbl 0725.53036)]. This paper is devoted to an intrinsic coordinate-free discussion.

For the entire collection see [Zbl 0764.00002].

Reviewer: [A.M.Pastore \(Bari\)](#)

MSC:

53C05 Connections (general theory)

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