

This article is one of the series of papers on the study of supergravity backgrounds which is initially developed by [1, 2]. According to [1], 11-dimensional supergravity with $\mathcal{N} > 4$ is locally homogeneous as a direct consequence of supersymmetry. This result, the so-called homogeneity theorem, also applies to *symmetric* backgrounds of M -theory [3] and type IIB supergravity [4]. One may think of that the homogeneity theorem provides us a new geometric tool to classify backgrounds of supergravity theories in terms of homogeneous spaces in the relevant dimensions.

One of the main results in this article is to give a thorough classification of symmetric M -theory backgrounds obtained in [3] by developing an algebraic technique for some spinor connections on a homogeneous space. This enables the authors to identify which backgrounds listed in [3] are supersymmetric in terms of a holonomy representation of the spinor connection. Familiarity to the results in [1, 2, 3] would be a prerequisite for serious readers.

References

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