ON THE BIANCHI IDENTITIES IN A GENERALIZED WEYL SPACE

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Abstract. In this paper, we show that the first Bianchi identity is valid for a generalized Weyl space having a semi-symmetric $E$-connection and that the second Bianchi identity is satisfied for a recurrent generalized Weyl space provided that the recurrence vector $\psi_l$ and the Vranceanu vector $\Omega_l$ are related by $\psi_l = \frac{2}{n-1}\Omega_l$.

1. Introduction

An $n$-dimensional differentiable manifold $W_n^*$ having an asymmetric connection $\nabla^*$ and asymmetric conformal metric tensor $g^*$ preserved by $\nabla^*$ is called a generalized Weyl space [1]. For such a space, in local coordinates, we have the compatibility condition

$$\nabla^*_k g^*_{ij} - 2T^*_k g^*_{ij} = 0,$$  (1.1)

where $T^*_k$ are the components of a covariant vector field called the complementary vector field of the generalized Weyl space.

The coefficients $L^i_{jk}$ of the connection $\nabla^*$ are obtained from the compatibility condition as [2]

$$L^i_{jk} = \Gamma^i_{jk} + \frac{1}{2} \left[ \Omega^h_{kl} g^*_j(h) + \Omega^h_{jl} g^*_k(h) + \Omega^h_{jk} g^*_l(h) \right] g^{*(l)i}$$  (1.2)

or, putting

$$Q^i_{jk} = \frac{1}{2} \left[ \Omega^h_{kl} g^*_j(h) + \Omega^h_{jl} g^*_k(h) + \Omega^h_{jk} g^*_l(h) \right] g^{*(l)i}$$  (1.3)

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