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 ψ_l and the Vranceanu vector Ω_l are related by $\psi_l = \dfrac{2}{n-1}\Omega_l$.

1. Introduction

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

$$\nabla_k^* g_{ij}^* - 2T_k^* g_{ij}^* = 0 \,, \tag{1.1}$$

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

The coefficients L_{jk}^i of the connection ∇^* are obtained from the compatibility condition as [2]

$$L_{jk}^i = \Gamma_{jk}^i + \frac{1}{2}\Big[\Omega_{kl}^h g_{(jh)}^* + \Omega_{jl}^h g_{(hk)}^* + \Omega_{jk}^h g_{(hl)}^*\Big]g^{*(li)} \tag{1.2}$$

or, putting

$$Q_{jk}^i = \frac{1}{2}\Big[\Omega_{kl}^h g_{(jh)}^* + \Omega_{jl}^h g_{(hk)}^* + \Omega_{jk}^h g_{(hl)}^*\Big]g^{*(li)} \tag{1.3}$$

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