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LAGUERRE'S FUNCTION OF DIRECTION IN A GENERALIZED WEYL HYPERSURFACE

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Abstract. In [1], the generalization of Laguerre's function of direction for a surface in ordinary space to a hypersurface of a Riemannian space is obtained. The Laguerre's function of direction for a hypersurface of a Weyl space has been derived in [2]. In this paper, the generalization of Laguerre's function of direction to a hypersurface of generalized Weyl space is made.

1. Introduction

An n-dimensional differentiable manifold W_n is said to be a Weyl space if it has a symmetric conformal metric tensor g_{ij} and a symmetric connection ∇ satisfying the compatibility condition given by the equation

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

where T_k are the components of a covariant vector field and ∇_k denotes the usual covariant derivative.

Let Γ^i_{jk} denote the coefficients of the connection ∇. Then, from the compatibility condition given by (1.1) we get

$$\Gamma^i_{jk} = \left\{ {i \atop jk} \right\} - \left(\delta^i_j T_k + \delta^i_k T_j - g^{li} g_{jk} T_l\right). \tag{1.2}$$

Under a renormalization of the fundamental tensor of the form $\tilde{g}_{ij} = \lambda^2 g_{ij}$ an object A admitting a transformation of the form $\tilde{A} = \lambda^p A$ is called a **satellite with weight** $\{p\}$ of the metric tensor g_{ij}.