

CONFORMAL MAPPINGS AND SPECIAL NETWORKS OF WEYL SPACES

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Abstract. In this paper, we show that a totally umbilical hypersurface of a recurrent Weyl space is conformally recurrent. Also, while a totally umbilical hypersurface of a recurrent Weyl space is conharmonically recurrent or conharmonically Ricci-recurrent, theorems concerning some special nets are proved.

1. Introduction

A differentiable manifold of dimension n having conformal metric tensor g and symmetric connection ∇ satisfying the compatibility condition

$$\nabla g = 2(TXg)$$

where T is a 1-form (complementary covector field) is called a **Weyl space** which is denoted by $W_n(g, T)$. After renormalization of the metric tensor g

$$\check{g} = \lambda^2 g$$

the vector field T is transformed [1] into

$$\check{T} = T + d \ln \lambda$$

An object A defined on $W_n(g, T)$ is called a satellite of g of **weight** $\{p\}$ if it admits a transformation of the form $\check{A} = \lambda^p A$ under the renormalization of g . Suppose that the metrics of W_n and W_{n+1} are elliptic and that they are given, respectively, by $g_{ij} du^i du^j$ and $g_{ab} dx^a dx^b$ which are connected by the relations

$$g_{ij} = g_{ab} x_i^a x_j^b \quad i, j = 1, 2, \dots, n, \quad a, b = 1, 2, \dots, n + 1$$