

ON SOME NEW TENSORS AND THEIR PROPERTIES IN A FOUR-DIMENSIONAL FINSLER SPACE-II

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ABSTRACT

Certain new tensors have been defined and studied in a Finsler space by Rastogi[4], while recently Rastogi[6] has introduced some new tensors D_{ijk} and Q_{ijk} etc. in a Finsler space of three dimensions in the following form:

$$D_{ijk} = D_{(1)}m_i m_j m_k + D_{(2)}n_i n_j n_k + \Sigma_{(ijk)}\{D_{(3)} m_i m_j n_k - D_{(1)} m_i n_j n_k\} \quad (1.1)$$

and

$$Q_{ijk} = \{D_{(1)/0} - 3 D_{(3)} h_0\} m_i m_j m_k + (D_{(2)/0} - 3D_{(1)}h_0) n_i n_j n_k \\ + \Sigma_{(ijk)}[\{(D_{(3)/0} + 3 D_{(1)}h_0) m_i m_j n_k - \{D_{(1)/0} + (D_{(2)} - 2 D_{(3)}) h_0\} m_i n_j n_k\}] \quad (1.2)$$

The tensor D_{ijk} so introduced satisfies $D_{ijk} l^i = 0$ and $D_{ijk} g^{jk} = D_i = D n_i$ and is similar to C_{ijk} while $Q_{ijk} = D_{ijk}/0$ is similar to P_{ijk} . The purpose of the present paper is to introduce tensors ${}^1D_{ijk}$ and ${}^2D_{ijk}$ in a Finsler space of four dimensions F^4 and study some of their properties. It is important to notice that in F^4 instead of one D_{ijk} , we have two such tensors.

KEYWORDS: New Tensors in Four-Dimensional Finsler Spaces

Article History

Received: 08 May 2019 | Revised: 17 May 2019 | Accepted: 11 Jun 2019

Mathematics Subject Classification 2000: 53B40, 53B18