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On h-isotropic and C^h-recurrent Finsler spaces

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The purpose of the present paper is to consider a Finsler space, characterized simply by the equations

$$R_h{}^i{}_{jk}=R(g_{hj}\delta^i_k-g_{hk}\delta^i_j), \qquad C^i_{hj|k}=C^i_{hj}K_k,$$

where the euclidean connection of E. Cartan [4] is treated. The first equation means that the Finsler space F^n is h-isotropic [1, p. 43-49], [6], [7, §39], and Akbar-Zadeh proves that the scalar R is constant. On the other hand, the second equation means that the torsion tensor C of F^n is recurrent with respect to the covariant differentiation due to E. Cartan. A generalization of the concept of recurrence was first introduced by A. Moór [9], who treated the recurrence of $R_h{}^i{}_{jk}$ and gave some interesting results.

An interesting example of a Finsler space which is characterized by some simple conditions imposed upon the curvature and torsion has been given by Gy. Soós [11]. His conditions are expressed by

$$C_i R^i_{0jk}=0, \qquad C^i_{hj|k}=0, \qquad (C_i=C^j_{ij}).$$

Similar to the Finsler space due to Gy. Soós, the Finsler space under consideration in the present paper is a simple generalization of Riemannian or Minkowskian spaces, because the former is characterized by $C^i_{hj}=0$, and the latter is done by $R=0$ and $K_k=0$ [4, p. 39], [10,