

## SOME PROPERTIES OF CONCURRENT VECTOR FIELDS IN A HYPERSURFACE OF A FINSLER SPACE

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### ABSTRACT

Concurrent vector fields in a Finsler space were first of all defined and studied in 1950 by Tachibana [8]. Concurrent vector fields were later on studied by Matsumoto and Eguchi [2] and other. In 2004, Rastogi and Dwivedi [5], while investigating the existence of concurrent vector fields found that the earlier definition of concurrent vector fields in a Finsler space was not suitable and hence, they gave a new definition of concurrent vector fields as follows:

### Definition 1

A vector field  $X^i(x)$  in a Finsler space  $F^n$  is called a concurrent vector field if it satisfies i)  $X^i A_{ijk} = \varphi h_{jk}$ , ii)  $X^i_{1j} = -\delta^i_j$ , where  $\varphi$  is a non-zero arbitrary scalar function of  $x$  and  $y$ ,  $A_{ijk} = L C_{ijk}$ .

The purpose of the present paper is to investigate the properties of concurrent vector fields by Lie-derivative in a Finsler space  $F^n$ . We have also studied some properties of concurrent vector fields in a hypersurface of a Finsler space following an earlier study by Rastogi [6].

**KEYWORDS:** Finsler Space, Properties of Concurrent Vector Fields

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