

AREAL SPACES BASED ON GEOMETRICAL THEORY OF PARAMETER-INVARIANT MULTIPLE INTEGRALS

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ABSTRACT

Areal spaces of different types have been studied by several authors, including Cartan [1], Davies [2], Kawaguchi [3] and several others. The study of areal spaces through parameter invariant multiple integrals is of great significance as the geometrical theory of areal spaces based on multiple integrals by Rund [8, 9] generalises both Finsler as well as Cartan spaces. Following Rund's approach, various aspects of areal spaces have been studied by Rastogi [5, 6, 7]. The aim of this paper is to continue that study and give some fundamental relations based on geometrical theory of multiple integrals. In this paper, I have defined and studied torse forming vector fields as well as defined and studied concurrent vector fields in an areal space X_4 , parameterised by a subspace C_2 . Besides fundamental tensors and relations, I have also studied special areal spaces like C -reducible areal spaces and some of their properties.

KEYWORDS: *Areal Spaces, Torse Forming Vector Fields, Concurrent Vector Fields, C-Reducible Areal Spaces*