

# On Tensor Fields Semiconjugated with Torse-forming Vector Fields \*

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## Abstract

The paper deals with tensor fields which are semiconjugated with torse-forming vector fields. The existence results for semitorse-forming vector fields and for convergent vector fields are proved.

**Key words:** Torse-forming vector fields, Riemannian space, semisymmetric space,  $T$ -semisymmetric space.

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## 1 Introduction

Torse-forming vector fields were introduced by K. Yano [8] in 1944 and their properties in Riemannian spaces have been studied by various mathematicians. For example some properties in Ricci semisymmetric Riemannian spaces have been proved by J. Kowolik in [1]. In  $T$ -semisymmetric Riemannian spaces they are studied by the authors in [4] and [5].

This paper is devoted to the study of tensor fields which are semiconjugated with torse-forming vector fields. We are motivated by the work of J. Kowolik [1].

First we give some definitions and notations.  $V_n$  denotes an  $n$ -dimensional Riemannian space with a metric  $g$  and an affine connection  $\nabla$ . The metric  $g$

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