

**Mikeš, Josef; Rachůnek, Lukáš**

**Torse-forming vector fields in  $T$ -semisymmetric Riemannian spaces.** (English) Zbl 0994.53009

Kozma, L. (ed.) et al., Steps in differential geometry. Proceedings of the colloquium on differential geometry, Debrecen, Hungary, July 25-30, 2000. Debrecen: Univ. Debrecen, Institute of Mathematics and Informatics, 219-229 (2001).

A Riemannian space  $V_n$  is called  $T$ -semisymmetric, where  $T$  is a tensor field on  $V_n$ , if the curvature tensor field  $R$  satisfies the condition  $R(X, Y) \circ T = 0$ , for arbitrary vector fields  $X, Y$ . A vector field  $\xi$  on  $V_n$  is called torse-forming if there are a function  $\rho$  and a 1-form  $\alpha$  so that  $\nabla_X \xi = \rho X + \alpha(X)\xi$ . In this paper the authors establish some properties for torse-forming vectors fields in a  $T$ -semisymmetric Riemannian space, where  $T$  is 1-form, a 2-covariant tensor field or the Ricci tensor field of  $V_n$ .

For the entire collection see [\[Zbl 0966.00031\]](#).

Reviewer: [V.Cruceanu \(Iași\)](#)

**MSC:**

**53B20** Local Riemannian geometry

**53B30** Local differential geometry of Lorentz metrics, indefinite metrics

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torse-forming vector field; concircular vector field; convergent vector field; recurrent vector field;  $T$ -semisymmetric Riemannian spaces; Kenmotsu manifolds

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