

GEODESIC MAPPINGS OF MANIFOLDS WITH AFFINE CONNECTION ONTO SYMMETRIC MANIFOLDS

VOLODYMYR BEREZOVSKII, JOSEF MIKEŠ[†] and PATRIK PEŠKA[†]

*Department of Mathematics, Uman National University of Horticulture
Uman, Ukraine*

[†]*Department of Algebra and Geometry, Palacky University
77146 Olomouc, Czech Republic*

Abstract. In this paper we study fundamental equations of geodesic mappings of manifolds with affine connection onto symmetric manifolds. We obtain fundamental equations of this problem. At the end of our paper we demonstrate example of studied mappings.

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1. Introduction

This paper is devoted to the theory of geodesic mappings. This theory was initiated by Levi-Civita in [17]. He studied and solved problem about finding metrics of Riemannian spaces with common geodesics. It is very interesting because these problems are closely linked to dynamical equations of a mechanical systems.

After that the theory of geodesic mappings, it was further developed by Thomas, Weyl, Shirokov, Solodovnikov, Sinyukov and others [1, 4–9, 13–15, 19–24, 26, 27, 29, 30, 32, 35, 37–41].

Some authors, see [12, 29, 30, 37], decided to study geodesic mappings on symmetric spaces, which was introduced by Cartan [3].

We note that geodesic and generalized mappings of symmetric, recurrent and general recurrent spaces studied many authors, e.g. [2, 13, 16, 18, 20–24, 29, 30, 33–37].

In our paper the fundamental equations of geodesic mappings of manifolds with affine connection onto symmetric manifolds were obtained as closed differential