

ROTARY DIFFEOMORPHISM ONTO MANIFOLDS WITH AFFINE CONNECTION

HANA CHUDÁ, JOSEF MIKEŠ[†] and MARTIN SOCHOR[†]

Dept. of Mathematics, FAI, Tomas Bata University, 760 00 Zlin, Czech Republic

[†] *Dept. of Algebra and Geometry, Palacky University, 779 00 Olomouc, Czech Republic*

Abstract. In this paper we will introduce a newly found knowledge above the existence and the uniqueness of isoperimetric extremals of rotation on two-dimensional (pseudo-) Riemannian manifolds and on surfaces on Euclidean space. We will obtain the fundamental equations of rotary diffeomorphisms from (pseudo-) Riemannian manifolds for twice-differentiable metric tensors onto manifolds with affine connections.

MSC: 53B05, 53B20, 53B30, 53A05

Keywords: Isoperimetric extremals of rotation rotary diffeomorphism, manifolds with affine connection, pseudo- Riemannian space, Riemannian spaces, two dimensional manifold

1. Introduction

A special diffeomorphism between (pseudo-) Riemannian manifolds and manifolds with affine and projective connections, for which maps any special curve onto a special curve, were studied in many works. For example geodesic mappings, for which any geodesic maps onto geodesic [1, 3–5, 13–16, 18, 19, 21, 22, 25]. Analogically holomorphically-projective and F -planar mappings for which any analytic and F -planar curve maps onto analytic and F -planar curve, respectively [4, 13, 15, 16, 18, 20, 21]. An almost geodesic mapping is defined as, that one for which geodesic is mapped onto almost geodesic curve [13, 15, 16, 21].

In this sense was introduced the following definition.