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.

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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 [1,3–5,13–16,19,21,22,25]. 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.