

Infinitesimal Bending of a Subspace of a Space with Non-Symmetric Basic Tensor

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Abstract

In this work infinitesimal bending of a subspace of a generalized Riemannian space (with non-symmetric basic tensor) are studied. Based on non-symmetry of the connection, it is possible to define four kinds of covariant derivative of a tensor. We have obtained derivation formulas of the infinitesimal bending field and integrability conditions of these formulas (equations).

Key words: Generalized Riemannian space, infinitesimal bending, infinitesimal deformation, subspace.

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0 Introduction

0.1. A generalized Riemannian space GR_N is a differentiable manifold, endowed with non-symmetric basic tensor $G_{ij}(x^1, \dots, x^N)$ [2], whose symmetric part is G_{ij} , and antisymmetric part G_{ij} .

By equations

$$x^i = x^i(u^1, \dots, u^M) \equiv x^i(u^\alpha), \quad \text{rank}(B_\alpha^i) = M, \quad (B_\alpha^i = \partial x^i / \partial u^\alpha), \quad (0.1)$$

in local coordinates is defined a *subspace* $GR_M \subset GR_N$, with metric tensor

$$g_{\alpha\beta} = B_\alpha^i B_\beta^j G_{ij}, \quad (0.2)$$