

On Applications of the Yano–Ako Operator^{*}

A. MAGDEN AND A. A. SALIMOV

*Department of Mathematics,
Faculty of Arts and Sci. Atatürk University,
25240 Erzurum, Turkey
e-mail: asalimov@atauni.edu.tr*

(Received May 12, 2006)

Abstract

In this paper we consider a method by which a skew-symmetric tensor field of type (1,2) in M_n can be extended to the tensor bundle $T_q^0(M_n)$ ($q > 0$) on the *pure cross-section*. The results obtained are to some extent similar to results previously established for cotangent bundles $T_1^0(M_n)$. However, there are various important differences and it appears that the problem of lifting tensor fields of type (1,2) to the tensor bundle $T_q^0(M_n)$ ($q > 1$) on the *pure cross-section* presents difficulties which are not encountered in the case of the cotangent bundle.

Key words: Lift; tensor bundle; pure tensor; operator Yano–Ako.

2000 Mathematics Subject Classification: 53C15, 53C25, 53C55

1 Introduction

Let M_n be a differentiable manifold of class C^∞ and finite dimension n , and let $T_q^0(M_n)$ ($q > 0$) be the bundle over M_n of tensors of type $(0, q)$:

$$T_q^0(M_n) = \bigcup_{P \in M_n} T_q^0(P),$$

where $T_q^0(P)$ denotes the tensor spaces of tensors of type $(0, q)$ at $P \in M_n$.

^{*}Supported by The Scientific and Technological Council of Turkey with number 105T551.