

## On Submanifolds of a H-structure Manifold

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**Abstract** - The purpose of the present paper is to study the noninvariant submanifolds of a H-structure manifold.

**Key words and phrases** : H-structure manifolds, submanifolds

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### 1 Introduction

CR or semi-invariant submanifolds in Kaehler manifolds, Sasakian manifolds and Kenmotsu manifolds have been studied by many geometers ([2], [3], [10], [12]). Cr. Christophoridou and Ph. J. Xenos defined on a differentiable manifold the H-structure which is more general than almost complex, almost product and almost tangent structures [4].

In this paper we give some properties of submanifolds of a H-structure manifold.

### 2 H-structure manifolds

In a  $2m$ -dimensional differentiable manifold  $\overline{M}$  of class  $C^\infty$  if there exist a non-trivial tensor field  $F$  of type  $(1,1)$  and a positive definite Riemannian metric  $G$  satisfying

$$F^2(\overline{X}) = \alpha^2 * \overline{X} \quad (1)$$

$$G(F\overline{X}, F\overline{Y}) + \epsilon\alpha^2 G(\overline{X}, \overline{Y}) = 0, \quad \overline{X}, \overline{Y} \in \chi(\overline{M}) \quad (2)$$

where  $\alpha$  is any real or purely imaginary number,  $\epsilon = -1$  (resp.  $\epsilon = 1$ ),  $I$  is the identity and  $\in \chi(\overline{M})$  is the Lie algebra of vector fields on  $\overline{M}$ , then