

Complex Hypersurfaces in an Indefinite Complex Space Form

Reiko AIYAMA, Toshihiko IKAWA, Jung-Hwan KWON*
and Hisao NAKAGAWA

University of Tsukuba and Nihon University

(Communicated by K. Ogiue)

Introduction

Let $M_s^r(c)$ be an n ($n \geq 2$)-dimensional indefinite complex space form of constant holomorphic curvature c and of index $2s$. Recently Romero [5] proved that an indefinite complex hypersurface with parallel Ricci tensor in $M_{s+a}^{n+1}(c)$ ($c \neq 0$) is Einstein. The purpose of this paper is to study an indefinite complex hypersurface M in $M_{s+a}^{n+1}(c)$ satisfying the condition

$$(*) \quad R(X, Y)S = 0,$$

for any vector fields X and Y of M , where R denotes the curvature tensor, S is the Ricci tensor and $R(X, Y)$ operates on the tensor algebra as a derivation. We shall prove the following

THEOREM. *Let M be a complex hypersurface of index $2s$ in $M_{s+a}^{n+1}(c)$ ($n \geq 2$). If $c \neq 0$ and M satisfies the condition $(*)$, then M is Einstein.*

In the last section it is shown that there exist many examples of Einstein complex hypersurfaces in an indefinite complex Euclidean space different from those given by Romero [3].

The authors would like to express their thanks to the referee for his valuable suggestions.

§1. Complex hypersurfaces in an indefinite complex space form.

Let M be a complex m -dimensional indefinite Kaehlerian manifold. Then M is equipped with an almost complex structure J which is

Received November 27, 1986

Revised June 10, 1987

* This research was partially supported by KOSEF.