

On complex semi-symmetric metric F -connection

By Toshio SAKAGUCHI

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Introduction.

Recently K. Yano [5]¹⁾ and T. Imai [1, 2] have studied some topics on the curvature tensor of a semi-symmetric metric connection in a Riemannian manifold. Especially, they have given the condition that a semi-symmetric metric connection in a Riemannian manifold has no curvature.

On the other hand K. Yano [6] has introduced the concept of a complex conformal connection in a Kählerian manifold and K. Yano, U. K. Kim [3] and O. Yoon [8] have given the condition that the Bochner curvature tensor of a Kählerian manifold vanishes.

The purpose of the present paper is to introduce the concept of a complex semi-symmetric metric F -connection and study some properties of a complex semi-symmetric metric F -connection in a Kählerian manifold. We study the condition that the Bochner curvature tensor of a Kählerian manifold vanishes. Also we define the holomorphic sectional curvature with respect to a complex semi-symmetric metric F -connection under some assumptions and study another condition that the Bochner curvature tensor of a Kählerian manifold vanishes.

In §1, we give preliminary formulas on a Kählerian manifold. In §2, we define a complex semi-symmetric metric F -connection and give the relation between the components of a complex semi-symmetric metric F -connection and the Christoffel symbols. In §3, we give the curvature tensor of a complex semi-symmetric metric F -connection and obtain the condition that the Bochner curvature tensor of a Kählerian manifold vanishes. In the last section §4, we define the holomorphic sectional curvature with respect to a complex semi-symmetric metric F -connection under some assumptions and obtain some theorems.

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1) Numbers in brackets refer to the references at the end of the paper.