

ON RIEMANNIAN MANIFOLDS WITH SASAKIAN 3-STRUCTURE OF CONSTANT HORIZONTAL SECTIONAL CURVATURE

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§ 0. Introduction.

In 1970 Kuo [4] introduced differentiable manifolds with normal contact (Sasakian) 3-structure and discussed about its associated metric, dimension, structure group of the tangent bundle and so on. Moreover, these differentiable manifolds have been studied from various viewpoints by Ishihara, Kashiwada, Tachibana, Tanno, Yu, one of the authors and others (See, for example [1], [2], [5], [7], [8]).

In 1964, Ogiue [6] has studied Riemannian manifolds with normal contact (Sasakian) structure (ϕ, ξ, g) , when the sectional curvature of the two plane orthogonal to ξ (so-called, C -holomorphic sectional curvature) does not depend on the C -holomorphic section, and given the form of the curvature tensor and obtained results on the problems of admitting the axiom of planes and the free mobility.

In the present note, we consider the condition on the sectional curvature of a Riemannian manifold with Sasakian 3-structure, corresponding to [6].

That is we shall prove

THEOREM. *Let M be an n -dimensional Riemannian manifold with Sasakian 3-structure ($n \geq 7$). Assume that M is of constant horizontal sectional curvature, then M is necessarily of constant curvature.*

In § 1, we give definitions of horizontal sections, horizontal sectional curvatures, and some formulas on the curvature tensors. § 2 will be devoted to the proof of the theorem above.

§ 1. Preliminaries.

Let (M, g) be a Riemannian manifold with Sasakian 3-structure (See, Ishihara and Konishi [1]). That is, $\xi_{(1)}$, $\xi_{(2)}$ and $\xi_{(3)}$ are mutually orthogonal unit Killing

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