KŌDAI MATH. SEM. REP.
24 (1972), 17—27

ON CERTAIN SUBMANIFOLDS OF CODIMENSION 2 OF A LOCALLY FUBINIAN MANIFOLD

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§ 0. Introduction.

Blair, Ludden and Yano [2] introduced a structure which is natually defined in a submanifold of codimension 2 of an almost complex manifold.

Yano and Okumura introduced what they call an (f, g, u, v, λ)-structure and gave a characterization of even-dimensional sphere [5]. They also studied submanifold of codimension 2 of an even-dimensional Euclidean space which admits a normal (f, g, u, v, λ)-structure [6]. The main theorem of [6] is the following

THEOREM. *Let a complete differentiable submanifold M of codimension 2 of an even-dimensional Euclidean space be such that the connection induced in the normal bundle is trivial. If the (f, g, u, v, λ)-structure induced on M is normal, then M is a sphere, a plane, or a product of a sphere and a plane.*

In the present paper, we study submanifolds of codimension 2 of a locally Fubinian manifold which admits an (f, g, u, v, λ)-structure.

In § 1, we consider a submanifold of codimension 2 of a Kählerian manifold and find differential equations which the induced (f, g, u, v, λ)-structure satisfies.

In § 2, we prove a series of lemmas which are valid for a certain (f, g, u, v, λ)-structure.

In § 3 we study submanifolds with normal (f, g, u, v, λ)-structure in a locally Fubinian manifold.

In the last § 4, we study a submanifold of codimehsion 2 such that the linear transformations $h_j{}^i$ and $k_j{}^i$ which are defined by the second fundamental tensors commute with $f_j{}^i$ in a locally Fubinian manifold.

§ 1. Submanifolds of codimension 2 of a Kählerian manifold ([5]).

Let $\tilde{M}$ be a $(2n+2)$-dimensional Kählerian manifold covered by a system of coordinate neighborhoods $\{\tilde{U}; y^\kappa\}$, where here and in the sequel the indices $\kappa, \lambda, \mu, \nu, \cdots$ run over the range $\{1, 2, \cdots, 2n+2\}$, and let $(F_\mu{}^\kappa, G_{\mu\lambda})$ be the Kählerian structure of $\tilde{M}$, that is,

Received December 17, 1970.

1) The author wishes to thank Professor M. Okumura who kindly pointed out uncertain places and gave him many valuable suggestions.