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CONTACT HYPERSURFACES IN CERTAIN KAEHLERIAN MANIFOLDS

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Introduction. An odd dimensional differentiable manifold M^{2n+1} is called an almost contact manifold if the structure group of its tangent bundle can be reduced to $U(n)\times 1$, where $U(n)$ means the real representation of the unitary group of n complex variables. Recently S. Sasaki [12] proved that the condition of almost contact manifold can be represented by a set of tensor fields ϕ, ξ, η which satisfy certain conditions. From this fact it is known that any orientable hypersurface of an almost complex manifold admits the structure of an almost contact manifold.[1] The study of hypersurfaces of an almost complex manifold is perhaps one of the most fruitful aspects of the theory of an almost contact manifold. In fact, M. Kurita [8], Y. Tashiro and S. Tachibana [15] and the present author [9, 10, 11] proved many theorems on certain hypersurface of an almost complex manifold. If the induced almost contact metric of a hypersurface of almost Hermitian manifold is contact metric we call the hypersurface a contact hypersurface.

In this paper, we mainly study the differential geometric properties of contact hypersurfaces of Kaehlerian manifold of constant holomorphic sectional curvature. In particular, as an even-dimensional Euclidean space E^{2n} can be regarded as a Kaehlerian manifold with vanishing sectional curvature, the results obtained apply to contact hypersurface of a Euclidean space.

In §1, we give first of all the definition of an almost contact metric manifold and, in §2, a short summary of those parts of the theory of hypersurfaces in an almost Hermitian manifold which are necessary for what follows. Moreover in §2 some general properties of contact hypersurfaces of a Kaehlerian manifold are derived and in §3 some examples of contact hypersurfaces of a Kaehlerian manifold are exhibited.

After these preliminaries we consider in §4 hypersurfaces of Kaehlerian manifold of constant holomorphic sectional curvature and prove that there are at most three distinct principal curvatures of a contact hypersurface in

1) Y. Tashiro [14].