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A CHARACTERIZATION OF A REAL HYPERSURFACE OF TYPE B

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Introduction.

A complex n-dimensional Kaehler manifold of constant holomorphic sectional curvature c is called a *complex space form*, which is denoted by $M_n(c)$. A complete and simply connected complex space form is a complex projective space P_nC, a complex Euclidean space C^n or a complex hyperbolic space H_nC according as $c>0$, $c=0$ or $c<0$.

In his study [12] of real hypersurfaces of P_nC, Takagi showed that all homogeneous hypersurfaces could be divided into six types. Namely, he proved the following

THEOREM A. *Let M be a homogeneous real hypersurface of P_nC. Then M is locally congruent to one of the following hypersurfaces*:

(A_1) *a geodesic hypersurface,*

(A_2) *a tube over a totally geodesic P_kC $(1\leqq k\leqq n-2)$,*

(B) *a tube over a complex quadric Q_{n-1},*

(C) *a tube over $P_1C\times P_{(n-1)/2}C$ and $n(\geqq 5)$ is odd,*

(D) *a tube over a complex Grassmann $G_{2,5}$ and $n=9$,*

(E) *a tube over a Hermitian symmetric space $SO(10)/U(5)$ and $n=15$.*

Moreover, Takagi [13] proved that if a real hypersurface of P_nC has two or three distinct constant principal curvatures, then M is locally congruent to the case of the homogeneous ones of type A_1, A_2 or B. In what follows the induced almost contact metric structure of the real hypersurface of $M_n(c)$ is denoted by (ϕ, g, ξ, η). The structure vector ξ is said to be *principal* if $A\xi=\alpha\xi$, where A is the shape operator in the direction of the unit normal C and $\alpha=\eta(A\xi)$. Real hypersurfaces of P_nC have been studied by many differential geometers ([2], [4], [5], [6] and [7] etc.) and as one of them, Kimura [5] asserts

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