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ORDER OF THE STANDARD ISOMETRIC MINIMAL IMMERSIONS OF CROSS AS HELICAL GEODESIC IMMERSIONS

By

Katsuya MASHIMO

0. Introduction.

Let $\phi: M\rightarrow\tilde{M}$ be an isometric immersion of a Riemannian manifold M into another Riemannian manifold $\tilde{M}$. Let γ be an arbitrary geodesic in M parametrized by arc-length. If the curve $\phi\circ\gamma$ in $\tilde{M}$ is of rank d and has constant curvatures $\kappa_{1}, \cdots, \kappa_{d-1}$ which are independent of the choise of the geodesic γ, then $\phi: M\rightarrow\tilde{M}$ is called a *helical geodesic immersion of order* d [7].

The standard isometric minimal immersions of compact rank one symmetric spaces (CROSS) into spheres, which we will define in §. 3, are examples of helical geodesic immersions. In [10] Tsukada calculated the order of the standard isometric minimal immersions of CROSS as helical geodesic immersions except the Cayley projective plane. In this paper we calculate the order of the standard isometric minimal immersions of CROSS in a different manner from the Tsukada's one. Namely we prove the following

THEOREM. *The k-th standard isometric minimal immersions* ϕ_{k} *of* CROSS *into spheres are helical geodesic immersions. And the order of the immersions are given as follows;*

M	order of ϕ_{k}
S^{n} , $n\geqq 2$	k
CP^{n} , $n\geqq 2$	$2k$
QP^{n} , $n\geqq 2$	$2k$
Cay P^{2}	$2k$

From Theorems of the author [5], [6], the order of the standard isometric minimal immersions of CROSS coincide with their degree.

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