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ONE-PARAMETER SYSTEMS OF DEVELOPABLE SURFACES OF CODIMENSION TWO IN EUCLIDEAN SPACE

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Abstract. In the present paper we consider a class of hypersurfaces of conullity two in Euclidean space, which are one-parameter systems of developable surfaces of codimension two and we prove a characterization theorem for them in terms of their second fundamental tensor.

1. Preliminaries

It is well-known that the curvature tensor R of a locally symmetric Riemannian manifold $(M^n_{\mathbb{C}}, g)$ satisfies the identity

$$R(X,Y) \cdot R = 0\,. \tag{1.1}$$

for all tangent vector fields X and Y. This is the reason why the spaces satisfying the identity (1) are called semi-symmetric spaces.

In 1968 Nomizu [6] conjectured that in all dimensions $n \geq 3$ every irreducible complete Riemannian semi-symmetric space is locally symmetric.

In 1972 Takagi [9] constructed a complete irreducible hypersurface in $\mathbb{E}^4$ which satisfies the condition (1.1) that is not locally symmetric. In 1972 Sekigawa [7] proved that in $\mathbb{E}^{m+1}$ $(m \geq 3)$ there exist complete irreducible hypersurfaces satisfying the condition (1.1) but are not locally symmetric. In 1982 Szabo [8] gave a local classification of Riemannian semi-symmetric spaces. According to his classification there are three types of classes, namely:

1) trivial class, consisting of all locally symmetric Riemannian spaces and all 2-dimensional Riemannian spaces;