

## ON THE GEOMETRIC STRUCTURE OF HYPERSURFACES OF CONULLITY TWO IN EUCLIDEAN SPACE

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**Abstract.** In this paper we introduce the notion of a semi-developable surface of codimension two as a generalization of the notion of a developable surface of codimension two. We give a characterization of the developable and semi-developable surfaces in terms of their second fundamental forms. We prove that any hypersurface of conullity two in Euclidean space is locally a foliation of developable or semi-developable surfaces of codimension two.

### 1. Introduction

The class of semi-symmetric spaces was first studied by Cartan [3] in connection with his research on locally symmetric spaces. All locally symmetric spaces and all two-dimensional Riemannian manifolds belong to this class. In 1968 Nomizu [7] conjectured that in all dimensions greater or equal to three every irreducible complete Riemannian semi-symmetric space is locally symmetric. His conjecture was refuted in 1972 by Takagi [11], who constructed a complete irreducible hypersurface in  $\mathbb{E}^4$ , which is semi-symmetric but is not locally symmetric, and by Sekigawa [8], who gave counterexamples of arbitrary dimensions. In 1982 Szabó [9] gave a local classification of Riemannian semi-symmetric spaces, dividing them into three basic classes: trivial, exceptional and typical. Semi-symmetric spaces of the typical class were studied also by Boeckx *et al* in [2] under the name Riemannian manifolds of conullity two.

In the present paper we study the class of the typical semi-symmetric hypersurfaces (hypersurfaces of conullity two) in Euclidean space  $\mathbb{E}^{n+1}$ , considering them with respect to their second fundamental form.

In Section 3 we introduce the notion of a semi-developable surface of codimension two as a generalization of the notion “developable surface” of codimension two