

1154-53-1041

David Sykes* (dgsykes@math.tamu.edu) and **Igor Zelenko**. *Local geometry of 2-nondegenerate CR structures: classification of symbols and maximally symmetric homogeneous models*. Preliminary report.

We give a classification of a basic invariant of the local differential geometry of hypersurface-type CR structures having a uniformly degenerate Levi form with 1-dimensional kernel. The invariant is a pair consisting of a real line of nondegenerate Hermitian forms and a complex line of self-adjoint antilinear operators. It was introduced by Curtis Porter and Igor Zelenko, and they classified elements in the family of these pairs for which the line of antilinear operators is closed under the operation of taking each operator's cube. We generalize this, giving a complete classification of these invariants by first obtaining a more general classification of pairs consisting of a nondegenerate Hermitian form and a symmetric form on finite dimensional vector spaces. We use this classification to give upper bounds for the dimension of the symmetry group of a CR structure corresponding to a given invariant, and we give necessary conditions for such an invariant to be associated with a homogeneous CR manifold. The talk is based on joint work with Igor Zelenko. (Received September 17, 2019)