

1030-32-77

John P. D'Angelo* (jpda@math.uiuc.edu), 1409 W. Green St, Urbana, IL 61801. *CR mappings from Lens spaces to spheres and to hyperquadrics.*

This talk has two connected parts; we summarize some results about invariant CR mappings between spheres and then we establish several new results about the complexity of such mappings.

The first part starts with Faran's result that there are four spherical equivalence classes of proper holomorphic mappings from the 2-ball to the 3-ball. Two of these four classes have monomial representatives that are invariant under representations of finite cyclic subgroups of $U(2)$. We discuss general results (Forstneric, Lichtblau, D'Angelo) about invariant CR Mappings to spheres and hyperquadrics.

The second part generalizes Faran's mappings to families of invariant CR mappings which exhibit remarkable number-theoretic properties. They satisfy an extremal property relating degree and imbedding dimension. We show (part of a project with J. Lebl) that a certain nonuniqueness phenomena for extremal maps occurs for infinitely many degrees but not for all degrees. Some complicated inequalities on various combinatorial numbers arise in the proof. Along the way we glimpse how some properties of these mappings depend on the underlying group alone while others depend on the unitary representation. (Received July 18, 2007)