

A sphere theorem for a class of Reinhardt domains with constant Levi curvature

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Abstract: The notion of Levi curvature, introduced by Bedford and Gaveau and by Tomassini, has been subsequently investigated by Montanari and Lanconelli. The Levi curvature is related to the Levi form and to the pseudoconvexity, the way the usual Mean and Gauss curvatures are related to real Hessian and to the convexity. If the graph of a function u has a prescribed Levi curvature, then u satisfies a degenerate fully nonlinear second order PDE. This equation becomes subelliptic, in a suitable sense, when u is strictly pseudoconvex. From this property one gets a strong comparison principle for pseudoconvex solutions. This last theorem is crucial to prove our main result, which is a first positive answer to the following question: are the spheres the only compact surfaces with constant Levi curvatures? In this talk we show that this holds true for a particular class of Reinhardt domains.