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Ellipsoids in pseudoconvex domains

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Abstract

We consider a complex analog of a problem that Fritz John posed and solved in 1948. Suppose we are given a pseudoconvex domain in complex Euclidean space $\mathbb{C}^n$. Among the hermitian ellipsoids (=complex linear images of the unit ball), inscribed in the domain, we search for those with maximal volume. We will discuss existence, uniqueness, and characterization of such maximal hermitian ellipsoid, and how this ellipsoid varies if the domain varies in a so called pseudoconvex family.