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SEMI-GLOBAL SOLUTIONS OF $\bar{\partial}_b$ WITH L^p $(1 \leq p \leq \infty)$ BOUNDS ON STRONGLY PSEUDOCONVEX REAL HYPERSURFACES IN $\mathbf{C}^n$ $(n \geq 3)$

C. H. Chang and H. P. Lee

Abstract

Let M be an open subset of a compact strongly pseudoconvex hypersurface $\{\rho = 0\}$ defined by $M = D \times \mathbf{C}^{n-m} \cap \{\rho = 0\}$, where $1 \leq m \leq n-2$, $D = \{\sigma(z_1, \ldots, z_m) < 0\} \subset \mathbf{C}^m$ is strongly pseudoconvex in $\mathbf{C}^m$. For $\bar{\partial}_b$ closed $(0,q)$ forms f on M, we prove the semi-global existence theorem for $\bar{\partial}_b$ if $1 \leq q \leq n-m-2$, or if $q = n-m-1$ and f satisfies an additional "moment condition". Most importantly, the solution operator satisfies L^p estimates for $1 \leq p \leq \infty$ with $p = 1$ and ∞ included.

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