1057-32-65 Jianguo Cao* (cao.7@nd.edu), Department of Mathematics, University of Notre Dame, Notre Dame, IN 46556, and Mei-Chi Shaw, Department of Mathematics, University of Notre Dame, Notre Dame, IN 46556. Bounded holomorphic functions on open Kaehler manifolds with negative curvature. Preliminary report.

In this lecture, we consider an open problem of S. T. Yau in complex analysis posted in 1979. Let M^{2n} be a simplyconnected complete Kaehler manifold with negative sectional curvature $-b^2 \leq \sec_M \leq -1$. Yau asked if M^{2n} admits a non-constant bounded holomorphic function. For instance, the Poincaré disk of constant negative curvature admits infinitely many and linearly independent bounded holomorphic functions. Using various results from comparison metric geometry and the so-called Kohn's d-bar-b theory on CR-hypersurfaces, we provide a new partial answer to Yau's problem for the case of complex dimension ≥ 3 . (Received January 02, 2010)