

**Speaker:** Mei-Chi Shaw  
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Tuesday, September 18, 2018  
11:00 AM  
258 Hurley Hall

**Title:** Hearing Pseudoconvexity in Complex Manifolds

**Abstract:**

Can one hear the shape of a drum? Mark Kac (1966) asks whether the spectrum (eigenvalues) of the Dirichlet Laplacian determines the shape of a planar domain. This question was answered negatively by Gordon, Webb, and Wolpert (1992). In this talk we relate pseudoconvexity with the spectral theory of the  $\bar{\partial}$ -Neumann operator on domains in complex manifolds. Recent results on the  $L^2$  closed range property for  $\bar{\partial}$  on an annulus between two pseudoconvex domains will be discussed. One can even characterize such domains through the spectral theory of their  $L^2$  Dolbeault cohomology groups, thus hearing pseudoconvexity of the boundary. (Joint work with Siqi Fu, and Christine Laurent-Thiebaud).