Speaker 1. Debraj Chakrabarti

Title. An Alexander-Pontrjagin type duality in the L^2 theory of the $\overline{\partial}$-operator.

Abstract. Hörmander's L^2 estimates on the $\overline{\partial}$-equation on bounded pseudoconvex domains are a cornerstone of modern complex analysis. Subsequently, attempts were made by Folland-Kohn, Shaw, Hörmander and others to extend these L^2 methods to appropriate classes of nonpseudoconvex domains. In this talk, we discuss an approach to the $\overline{\partial}$-problem on an annulus between two weakly pseudoconvex domains which is inspired by Alexander-Pontrjagin duality in topology. This is ongoing joint work with Phil Harrington of Arkansas.

Speaker 2. Steven Krantz (colloquium speaker)

Title. Analysis on the Worm Domain.

Abstract. The Diederich-Fornaess worm domain is a domain in complex space with very special geometric and analytic properties. Anyone with a basic course in complex analysis can understand the worm. But working with the worm is a challenge. It is subtle and usually quite difficult. In joint work with Marco Peloso and Caterina Stoppato we have been able to study the Bergman kernel for the worm and to learn some of its fundamental properties.

This will be an expository lecture, and will be accessible to a broad audience.