中央研究院數學研究所
**Institute of Mathematics**
**Academia Sinica**

國立台灣大學數學系
**Department of Mathematics**
**National Taiwan University**

# Lakeside Lecture Series

Speaker: 楊建平教授

Professor Paul Yang

(Princeton University)

Title: CR Geometry in 3-D

Abstract:

In this lecture I will summarize recent work on pseudo-hermitian geometry in 3-D. The analysis involves several conformally covariant operators that has their counterparts in conformal geometry in 4-D, and a new one that does not. In this geometry, the sign of fourth order operator studied by Hirachi and the analogue of the conformal Laplacian plays an important role. Under this sign condition, it is possible to solve the embedding problem and hence to solve the Cauchy-Riemann equations. In addition, the same sign condition gives the analogue of the positive mass theorem, thus the solution of the CR-Yamabe equation. Finally, a new operator introduced by Branson/Fontana/Morpurgo yields new invariant that can be identified with the renormalized volume, as well as an analogue of the sphere theorem in CR geometry.

Date: February 25th, 2013

Time: 14:00-15:00

Venue: Room 102, 1/F, Astro-Math. Building

Refreshment: 13:30-14:00

Organizers: Yi-Chiuan Chen, Kin-Ming Hui, Jenn-Nan Wang, Jeremy Wong