THE UNIVERSITY   **OF HONG KONG**

Institute of Mathematical Research
Department of Mathematics

Geometry Seminar

CR Geometry in 3-D

Professor Paul Yang
Princeton University

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 conditions 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 27, 2013 (Wednesday)

Time: 2:00 – 3:00pm

Place: Room 210, Run Run Shaw Bldg., HKU

All are welcome