

The Hong Kong Polytechnic University Department of Applied Mathematics

Seminar On

Quantum computing, higher rank numerical ranges, totally isotropic subspaces and matrix equations

by

Prof. Chi-Kwong Li Department of Mathematics The College of William and Mary

Abstract

An introduction will be given to quantum error correcting codes, which leads to the discussion of the higher rank numerical range $\Lambda_k(A)$ of an $n \times n$ matrix A. The solutions of several problems on the higher rank numerical range related to quantum error correcting codes will be presented. In addition, the results are used to derive a formula for the maximum dimension of a totally isotropic subspace of a square matrix, and verify the solvability of a number of matrix equations. If time permits, extensions of the results to infinite dimensional operators and some dilation theorems will be discussed.

This is based on joint work with Yiu-Tung Poon (Iowa State University) and Nung-Sing Sze (University of Connecticut).

Date	: 14 May, 2008 (Wednesday)
Time	: 3:00 – 4:00 p.m.
Venue	: Departmental Conference Room HJ610 The Hong Kong Polytechnic University