



DEPARTMENT OF APPLIED MATHEMATICS

應 用 數 學 系

**The Hong Kong Polytechnic University
Department of Applied Mathematics**

Colloquium

A simple construction for quantum error-correcting codes

by

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Abstract

The discovery of quantum error-correcting codes (QECCs) has greatly improved the long-term prospects for quantum communication and computation technology. Stabilizer codes, a quantum analogue of classical additive codes, are the most important class of QECCs. These codes have dominated the study of quantum error correction ever since their discovery in the mid-1990s. Here we present a simple unifying approach to quantum error-correcting code, namely the codeword stabilized quantum code framework. Our design encompasses stabilizer (additive) codes, as well as all known examples of nonadditive codes with good parameters. We use this framework to generate new codes, with superior parameters to any previously known.

Date : 7 November, 2016 (Monday)

Time : 2:30p.m. – 3:30p.m.

Venue : TU801, The Hong Kong Polytechnic University

***** ALL ARE WELCOME *****