

Liu Bie Ju Centre for Mathematical Sciences
City University of Hong Kong

Mathematical Analysis and its Applications Colloquium

Organized by Prof. Hui-Hui Dai and Dr. Dan Dai

Symmetry through geometry

by

Professor Nalini Joshi

ARC Georgina Sweet Australian Laureate Fellow and Chair of Applied
Mathematics,
The University of Sydney, Australia
Fellow, Australia Academy of Sciences

Date : Jan 27, 2016 (Wednesday)

Time : 4:30 pm to 5:30 pm

Venue: B5-416, Blue Zone, Level 5, lift 4, Academic 1 (AC1)
City University of Hong Kong

ABSTRACT:

The search for symmetries of differential equations set in motion the development of extraordinarily important areas of mathematics. In this talk, we provide a new perspective on the corresponding problem for difference equations, by using a simple, beautiful geometric structure revealed in our recent study. The objects of this study are partial difference equations that arise as discrete versions of famous PDEs. These discrete systems consist of equations fitted together in a self-consistent way on a square, a 3-cube or an N-dimensional cube. By using the geometric structure of space-filling polytopes, we show how to find their unexpected symmetry reductions.

N. Joshi, N. Nakazono and Y. Shi (2014). "Geometric reductions of ABS equations on an n-cube to discrete Painlevé systems." *Journal of Physics A-Mathematical and Theoretical* 47: 505201 (16pp).

Light refreshments will be provided outside venue before the colloquium from 4:00 pm to 4:30 pm. Please come and join us!

**** All interested are welcome ****

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