**Department of Mathematics
Statistics Research and Consultancy Centre**

Distinguished Lecture Series

Biological Network Inference From Genomics Data

Professor Hongyu Zhao

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Elected Fellow, American Association for the Advancement of Science, 2010
Mortimer Spiegelman Award, American Public Health Association, 2008
Elected Fellow, Institute of Mathematical Statistics, 2007
Elected Fellow, American Statistical Association, 2006*

Date: **24 April 2012 (Tuesday)**

Time: **11:00 am - 12:00 noon** (Preceded by Reception at 10:30 am)

Venue: **FSC1217, Fong Shu Chuen Building,
Ho Sin Hang Campus,
Hong Kong Baptist University**

Abstract

Revealing networks of biological components is one of the key questions in systems biology, and it has potential applications in understanding disease physiology and drug discovery in the area of network medicine. With advances in high throughput biology, we can now measure the expression levels and DNA variations at the genome level, either through microarrays or next generation sequencing. These data offer the opportunity to statistically infer genetic networks from these data. In this presentation, we discuss several approaches for network inference through jointly analyzing gene expression data under diverse conditions in combination of DNA variation data. We provide both theoretical and simulation results to investigate the properties of our procedures. We also demonstrate the usefulness of our approaches through their applications to real data. This is joint work with Hyonho Chun, Bing Li, Ruiyan Luo, Haisu Ma, and Xianghua Zhang.

✦ ✦ ✦   **All are welcome**   ✦ ✦ ✦

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