WILLIAM BENTER DISTINGUISHED LECTURE SERIES

**A Series of Distinguished Lectures in Pure and Applied Mathematics
organized by
Liu Bie Ju Centre for Mathematical Sciences
City University of Hong Kong**

Algorithms, Combinatorics, and Analysis

by

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INRIA and Academy of Sciences, France

Abstract

Algorithms were initially designed to deal with numbers (integers, reals) and their development was then tightly coupled with progress in classical mathematics. The advent of computers has given rise to an overwhelming need to operate with non-numerical objects, such as words, trees, and graphs, which belong to the area known as discrete or combinatorial mathematics. In this context, a revolution started in the 1970s, largely under the impulse of Knuth and Rabin, who showed how it could be highly beneficial to bet on the likely shape of data and even introduce on purpose randomness at the heart of computational processes. The talk will present some of the mathematics that has stemmed from here. Some surprisingly efficient computational procedures backed by the theory of analytic combinatorics will also be discussed. These illustrate once more, in the words of the physicist Eugene Wigner, the "unreasonable effectiveness of mathematics", now in the area of high-performance combinatorial algorithms.

Date   : Wednesday, 11 February, 2009

Time   : 16:30

Venue : CSE Conference Room B6605,
        Blue Zone, 6/F, Lift No. 3,
        Academic Building,
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