



THE UNIVERSITY OF HONG KONG

DEPARTMENT OF
COMPUTER SCIENCE

Lectures on

Discrepancy: Survey and Recent Progress

Date and Time : May 8 and 13, 2-4 pm

Venue: CB308, Chow Yei Ching Building, HKU

Nikhil Bansal

Patrick C. Fischer Professor
of Theoretical Computer Science

University of Michigan



Abstract:

Discrepancy theory provides a powerful approach to improve upon the bounds obtained by a basic application of the probabilistic method, with several applications to theoretical CS.

In these lectures, I will give an overview of the area, survey some of the classical results and techniques. Then I will describe the various algorithmic techniques that have been developed for discrepancy problems, based on probabilistic and geometric ideas. Time permitting, we will discuss a recent approach based on barrier functions that recovers several state-of-the-art results in a unified way.

About the Speaker:

Nikhil Bansal is the Patrick C. Fischer Professor of Theoretical Computer Science at University of Michigan, and a Fellow of the ACM. His research predominantly explores algorithm design, with his work focusing on combinatorics, discrete optimization, approximation algorithms, and more. Some of his recent projects include applying techniques from semidefinite programming to algorithmic discrepancy, and developing new ways to deal with uncertainty in scheduling algorithms.