Applied Computability Theory and Effective Randomness

Assistant Professor Ng Keng Meng
Department of Mathematics
University of Wisconsin-Madison, USA

Date: 18 August 2010 (Wednesday)
Time: 11.30 am – 12.30 pm
Venue: MAS Executive Classroom 2, MAS-03-07
School of Physical and Mathematical Sciences

Computability theory is devoted to measuring the complexity of sets of natural numbers by algorithmic means. We examine several ways to measure complexity. Effective randomness calibrates complexity by defining when an infinite binary string can occur by chance. I will talk about the different ways in which one can take to calibrate randomness, and discuss some of the recent development in this area. In particular, I will focus on the interactions of randomness with computability and other applied logic topics such as reverse mathematics.

Speaker Biography

Dr Ng Keng Meng obtained B.Sc (1st class Honours) and M.Sc degrees from the National University of Singapore. He went on to Victoria University of Wellington, New Zealand where he received his Ph.D degree in mathematics in 2009. Dr Ng is currently an Assistant Professor in the Department of Mathematics – University of Wisconsin-Madison, USA. Dr Ng’s main research interest lies in the theory of computation, particularly in descriptive and algorithmic complexity. His work strives to unravel the interaction between theory of computation and related applied logic topics. He has written papers on degrees of unsolvability and algorithmic randomness. Recently, he started working on reverse mathematics and the application of computability to the analysis of mathematical proofs. He was the post-doctoral fellow for the inaugural Asian Initiative for Infinity Graduate Summer School held at the National University of Singapore in 2010, where he delivered an introductory lecture on reverse mathematics.

Host: Prof Chee Yeow Meng, Head, Division of Mathematical Sciences, School of Physical and Mathematical Sciences