THE UNIVERSITY  OF HONG KONG

Institute of Mathematical Research
Department of Mathematics

PROBABILITY AND INFORMATION THEORY SEMINAR

Multicast Network Coding and Field Sizes

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Abstract

Departing from the traditional store-and-forward networking paradigm, network coding encourages information mixing in the middle of a network for enhanced network capacity. For one-to-many multicast transmissions, linear coding that involves addition and multiplication over a finite field is sufficient. A basic question is the appropriate selection of such a field, since a too small field may forbid the multicast receivers from decoding, while a too large field incurs high computation overhead. This talk reviews three recent work along this direction: (1) the possible sufficiency of very small fields in multicast networks that have a planar graph topology, (2) the connection between field sizes and graph minors contained in the multicast network, and (3) the relation between the "power" of a finite field and its multiplicative subgroups.

Biography of speaker:

Zongpeng Li is Associate Professor and Associate Head at the Department of Computer Science, University of Calgary, in Calgary, Alberta, Canada. Zongpeng received his BSc from Tsinghua University in 1999, and his MSc and PhD from University of Toronto in 2001 and 2005, respectively. His research interests include network coding, and efficient algorithms and mechanisms in ICT.

Date:	June 23, 2014 (Monday)
Time:	11:00am – 12:00noon
Place:	Room 309, Run Run Shaw Bldg., HKU

All are welcome