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DEPARTMENT OF STATISTICS AND ACTUARIAL SCIENCE
THE UNIVERSITY OF HONG KONG

Seminar

Dr. Yueqing HU

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The University of Hong Kong
Hong Kong

will give a talk

entitled

**HAPLOTYPE-BASED TESTS OF
ASSOCIATION/IMPRINTING JOINTLY
USING CASE-PARENTS TRIOS AND
CASE-PARENT PAIRS**

Abstract

Recently there have been increasing interests in genetic studies involving several closely linked loci. This is mainly due to the fact that complex diseases are often associated with multiple markers and haplotype analysis is generally regarded as advantageous over single-marker analysis. The HAP-TDT/HAP-PAT is such a tool to test for association/imprinting using multiple tightly linked markers based on case-parents trios. It is not uncommon in practice that one parent is missing due to some reasons such as late onset and case-parents trios are thus reduced to case-parent pairs, and discarding such kind of data certainly leads to a severe loss of information. Taking the information on case-parent pairs into account in genetic study is addressed in this study. The statistic HAP-1-TDT/HAP-1-PAT based on case-parent pairs is thus proposed to detect association/imprinting. One permutation-based randomization technique is devised to evaluate the significance of the test statistics. Furthermore, the combined statistic HAP-C-TDT/HAP-C-PAT is developed to jointly use case-parents trios and case-parent pairs. These methods can be applied to either phase-known or phase-unknown data. A number of simulation studies are conducted to investigate the validity of the proposed tests and show that these statistics are robust to population structure. Several disease genes taken from literature are used to illustrate that incorporating case-parent pairs into association study leads to the significant power gain. Meanwhile, the power/size comparison with the existing software is made and the superiority of our proposed methods is shown therein.

on

Thursday, January 8, 2009

3:00 p.m. – 4:00 p.m.

at

**Room 524, Meng Wah Complex
(behind the Chong Yuet Ming Amenities Centre)**

Visitors Please Note that the University has limited parking space. If you are driving please call the Department at 2859 2466 for parking arrangement.

All interested are welcome