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Workshop on Probability and PDEs

Jointly organized by The Institute of Mathematical Sciences
and Department of Mathematics, CUHK

Organizers: Zhouping Xin, Po-Lam Yung

Date: April 1, 2015 (Wednesday)

Venue: Room 222, Lady Shaw Building, CUHK

Time	Speaker & Title & Abstract
11:00am – 12:00nn	<p>Professor Jiaxin Hu (Tsinghua University) Generalized capacity, Harnack inequality and heat kernels Abstract: We give necessary and sufficient conditions for the estimates of the heat kernel of a strongly local regular Dirichlet form on a metric measure space. The conditions for two sided heat kernel estimates of sub-Gaussian type are given in terms of the generalized capacity inequality and the Poincare inequality, where the main difficulty lies in obtaining the elliptic Harnack inequality. The conditions for upper estimate are given in terms of the generalized capacity inequality and the Faber-Krahn inequality. Joint with Alexander Grigor'yan and Ka-Sing Lau.</p>
2:00pm - 3:00pm	<p>Professor Alexander Grigor'yan (University of Bielefeld) Heat kernel on manifolds with ends (non-parabolic case) Abstract: We give two-sided estimates of the heat kernel on a connected sum of manifolds, each of them satisfying Li-Yau estimate. The results depend on the end being parabolic or not. In this talk we discuss the case when at least one of the ends is non-parabolic, leaving the parabolic case to another talk. Based on a joint work with Laurent Saloff-Coste (Cornell).</p>
3:15pm – 4:15pm	<p>Professor Satoshi Ishiwata (University of Tsukuba) Heat kernel estimates on manifolds with parabolic ends Abstract: As a sequel of the previous talk, we give sharp heat kernel estimates on connected sums so that all ends are parabolic (namely, the BM is recurrent). The content of this talk is based on a joint work with Alexander Grigor'yan (Bielefeld) and Laurent Saloff-Coste (Cornell).</p>
6:00pm – 8:00pm	Workshop Banquet