THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

DEPARTMENT OF APPLIED MATHEMATICS
應 用 數 學 系

Department of Applied Mathematics Seminar

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Topic

On the parabolic Cauchy problem on networks with vertex noise

Date| Time

31 March 2025 (Monday) | 17:00 – 18:00 (HK Time)

Mode of Delivery

Online via Zoom

Meeting ID | Passcode

856 2514 6176 | 0331

Zoom Link

https://polyu.hk/cWxDJ

Abstract:

We investigate the parabolic Cauchy problem on networks with Lipschitz or polynomial type nonlinearities placed on the edges of the network and Gaussian noise perturbed vertex conditions. The vertex conditions are the standard continuity and Kirchhoff conditions in each vertex. We obtain existence, uniqueness and regularity results for the mild solution. These results are the network analogues of those obtained by da Prato and Zabczyk in case of a single interval and classical boundary Dirichlet or Neumann noise. In the linear case when Kirchhoff conditions are perturbed, we also investigate the strong Feller property of transition semigroup associated with the problem. We show that the network vertex noise setting is rather different from the classical one dimensional boundary noise setting, where the transition semigroup is known to be strong Feller, by giving examples and counterexamples to the strong Feller property. These results are obtained through collaboration with D. Bolin, M. Fkirine, V. Kumar, E.Sikolya and A. Simas.

ALL ARE WELCOME