



The Hong Kong University of Science and Technology

Department of Mathematics

Seminar on PDE

**Pointwise estimates for fundamental
solutions of nonlocal equations**

by

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Abstract

As shown by Aronson in the 1960's, the fundamental solution of parabolic partial differential operators in divergence form can be bounded from above and below by the Gaussian heat kernel, i.e., the fundamental solution of the classical heat equation. This robustness result has turned out important for many applications including modern results on partial differential equations in random media. In the talk we study the extension of this robustness result to integrodifferential operators of fractional order. First, we recall the result by Chen/Kumagai from 2003 regarding the fractional Laplace operator. Then we present a new result based on a joint work with K. Kim and T. Kumagai. We show that the robust result extends to anisotropic cases. Finally, we discuss the conjecture that the robustness result holds true for any generator of a non-degenerate stable stochastic process.

Date: Monday, 9 September 2019

Time: 10:00a.m. - 11:00a.m.

**Venue: Room 3472, Academic Building
(near Lifts 25 - 26), HKUST**

All are welcome!