A Workshop on Future Directions in Fractional Calculus Research and Applications

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Anomalous Diffusions and Fractional Order Differential Equations

Abstract

Anomalous diffusion phenomenon has been observed in many natural systems, from the signalling of biological cells, to the foraging behaviour of animals, to the travel times of contaminants in groundwater.
I will first discuss the connections between anomalous diffusions and differential equations of fractional order, and then present some recent results in the study of heat kernels for non-local operators of fractional order.