How to solve the heat equation using Brownian motion

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Week 6 - Term 3

WARWICK MATHEMATICS

POSTGRADUATE SEMINAR

Abstract

The heat equation, which describes how heat moves through space, is one of the most fundamental partial differential equations. It has attracted a lot of attention since its first formulation, and many methods were developed to solve it, including Fourier analysis.

One way of solving the heat equation is to use Brownian motion, a famous random process in probability theory. We will explain intuitively how the solution can be constructed, defining Brownian motion along the way. No special prior knowledge is required, although the basics of probability theory and analysis would be useful.

Time

12 pm, 31st May 2023

Location

Room B3.02

Organisers

Alvaro Gonzalez Hernandez
Katerina Santicola