KAAPI WITH KURIOSITY

Chance and chaos: how to predict the unpredictable

Jens Marklof

Professor Jens Marklof FRS is an international expert on the mathematical modelling of chaotic systems. His research has answered long-standing questions in quantum chaos, number theory and statistical physics. He graduated from the Universities of Hamburg and Ulm, and held research fellowships at Princeton University, Hewlett-Packard, the Isaac Newton Institute in Cambridge, the Institut des Hautes Etudes Scientifique and the Laboratoire de Physique Theorique et Modeles Statistiques near Paris. Jens Marklof is Professor of Mathematical Physics and Dean of the Faculty of Science at the University of Bristol, and a Fellow of the Royal Society. During the current academic year, he is visiting India as a Royal Society Yusuf Hamied Visiting Professor.

We live in a chaotic world: from weather forecasts and natural disasters to political developments, it seems often impossible to even make the most basic predictions. In this lecture I will discuss one of the most fundamental mathematical principles behind such unpredictability: the inherent instability of systems with chaotic behaviour that leads to extreme amplification of the smallest errors in the data. In particular, I will explore with you the legendary question "Does the flap of a butterfly's wings in Brazil set off a tornado in Texas?" (Lorenz 1972) and explain how chaos theory has established the best way of kneading bread dough! By the end of this lecture, I hope to have convinced you of the power of mathematical tools in the analysis of chaotic systems. But will these tools allow you to win the jackpot in the lottery? Come to my lecture and find out!

4 pm, Sunday, December 11th, 2022
Jawaharlal Nehru Planetarium, Bengaluru

Registration Link: bit.ly/kwk_dec2022

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