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TATA INSTITUTE OF FUNDAMENTAL RESEARCH

ICTS Lecture Series

Title : Lectures on the Unified Transform Method for linear partial differential equations

Speaker : Bernard Deconinck, University of Washington, USA

Date : Wednesday, October 11, 2017

Time : 2:30 PM

Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore

Abstract : In a series of 4 classroom lectures, I will introduce a new method for solving linear partial differential equations with constant coefficients, due to A. Fokas (Cambridge). The method was "discovered" only about 20 years ago, and its investigation continues to this day.

It is more powerful than traditional Fourier or Laplace type methods, as it can provide explicit solutions to problems that are not approachable using the classical methods. On the other hand, it is not harder to understand than these classical methods. I will begin by showing how the method works on the classically-solvable problem of the heat equation for $x > 0$, before going to harder problems.

The talks will be accessible to all who know the Fourier transform and the residue theorem. Even if just attending the first hour, one will learn the essence of the method.