ICTS | INTERNATIONAL CENTRE for THEORETICAL SCIENCES

TATA INSTITUTE OF FUNDAMENTAL RESEARCH

ICTS Lecture Series

Title : An introductory mini-course on Resurgence Theory: generalised Borel-Laplace summation, "alien calculus", and applications.

Speaker : David Sauzin (Institute of Celestial Mechanics and Computation of the Ephemerides, Paris)

Schedule : 25th July, 27th July & 1st August 2022

Time : 11:00 AM to 12:30 PM (IST)

Abstract : Resurgence Theory has become a fixture in the past decade's mathematics/physics research literature, with applications ranging from wall-crossing phenomena and exact WKB method to deformation quantisation and TQFT. In this minicourse, we'll try to explain what this toolbox concretely consists of. It may be seen as a refinement of the Borel-Laplace summation method designed to encompass the transseries which naturally arise in a variety of situations. Typically, a resurgent series is a divergent power series in one indeterminate that appears as the common asymptotic expansion to several analytic functions, and these functions differ by exponentially small quantities. More than 40 years ago, Jean ÉCALLE invented the so-called "alien derivations" to measure these exponentially small discrepancies and to give quite a concrete description of various moduli spaces in the context of local analytic dynamical systems. More or less at the same time, it was realised that André VOROS's approach to the WKB series of 1D Schrödinger operators leads to resurgence in \hbar, but the story is not over...

Venue : Hybrid Mode

Offline: Madhava Lecture Hall

Online: Please click on the below link to join the meeting

https://icts-res-in.zoom.us/j/85460711317?pwd=R0ZheXFmakFORWZEM3NHOUdaWnlWdz09
Meeting ID: 854 6071 1317
Passcode: 252522

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