A Joint IMSA, Physics & Math Lecture Series

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PROFESSOR
SCGP AND STONY BROOK

Towards Lefschetz
thimbles
in quantum field theory I
(2:00 pm)
and
Towards Lefschetz
thimbles
in quantum field theory II
(5:45 pm)

In quantizing classical mechanical systems or classical field theories, one often sums over the classical trajectories as in localization formulas, but also takes into account the contributions of the "instanton gas": a set of approximate solutions of the equations of motion. I will report on the attempts to alleviate some of the frustrations of this 40+ year-old approach by finding the honest solutions of equations of motion of the complexified systems. These ideas originate in the Bethe/gauge correspondence and the Ω-deformed B-model. The examples include algebraic integrable systems, from the abstract Hitchin systems to the well-studied anharmonic oscillator, and 1+1-dimensional sigma models, such as O(N) and CP(N-1) model (based on the work with late Igor Krichever).

To Register:

Reception Immediately after the last talk.