



SFB-Seminar Teilprojekt C5

ZEIT:

5.5.2014, 14:00 Uhr - 16:30 Uhr

ORT:

Humboldt-Universität zu Berlin
Institut für Mathematik und Institut für Physik
IRIS Gebäude, Vortragsraum 2.07
Zum Großen Windkanal 6
12489 Berlin-Adlershof

PROGRAMM:

14:00 - 15:00 **Prof. Maxim Zabzine (Uppsala University)**

Localization in quantum field theory

The main idea of Berline-Vergne and Atiyah-Bott localisation formulas is that the certain multidimensional integral can be evaluated exactly by summing up a number of fixed points contributions. I will discuss how these ideas can be generalized to infinite dimensional setup in the context of quantum field theory. As an illustration I will discuss briefly the example of 3D Chern-Simons theory.

15:00 - 15:30 Pause

15:30 - 16:30 **Prof. Gerald Dunne (University of Connecticut)**

Resurgence and Non-Perturbative Physics

"Resurgent" semiclassical analysis, a systematic unification of perturbative and non-perturbative sectors, can be applied to resolve fundamental problems in quantum theories with degenerate minima. Expansions about different saddle points are quantitatively related to one another in a precise manner. Illustrations include double-well and

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periodic potentials in QM, and asymptotically free QFTs such as CPN and Yang-Mills, where this resurgent approach yields a new semiclassical interpretation of IR renormalons.

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