



## SFB-Seminar Teilprojekt C5

### ZEIT:

6.5.2014, 15:00 Uhr - 17:30 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:

15:00 - 16:00 **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.

16:00 - 16:30 Pause

16:30 - 17:30 **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

### **Kontakt:**

Humboldt-Universität zu Berlin . Institut für Mathematik  
SFB 647 . Unter den Linden 6 . 10099 Berlin  
Tel. +49 30 2093 1804 . Fax. +49 30 2093 2727  
sfb647@math.hu-berlin.de

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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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