SFB Colloquium Novel Methods for Perturbative QFT (research Project C4 and joint seminar with AEI)

TIME:
7 May 2013, 14:30 - 18:30

LOCATION:
Humboldt-Universität zu Berlin
Institut für Mathematik und Institut für Physik
AG Mathematische Physik von Raum, Zeit und Materie
IRIS Gebäude, Vortragsraum 2.07
Zum Großen Windkanal 6
12489 Berlin-Adlershof

PROGRAM:

14:30 - 15:00 Tea-Time

15:00 - 16:00 **Dr. Oliver Schnetz**

Single-valued multiple-zeta-values
Abstract:
Single-valued multiple-zeta-values are special values of single-valued multiple polylogarithms which are generalizations of the Bloch-Wigner dilogarithm. Using the Ihara action the motivic counterparts of single-valued multiple-zeta-values can be characterized in terms of the Galois coaction on motivic multiple-zeta-values. We give a short account of the theory of single-valued multiple-zeta-values and describe their role in the theory of Feynman periods.

16:00 - 16:30 Tea-Time

16:30 - 17:30 **Dr. Dmytro Volin**

"Integrability and multiple zeta-functions in planar N=4 SYM"
Abstract:

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I will explain how to perform higher loop computations in planar N=4 SYM using integrability techniques. In particular, we will discuss the so called Konishi anomalous dimension, which we computed explicitly up to eight loops, observing appearance of a non-reducible multiple zeta-value for the first time, and for which the highest transcendental terms can be resummed at all orders of the perturbation theory. Finally, I will give a conjecture that only multiple zeta-values can appear in the answer at any order of the perturbative expansion.

17:30 - 18:30 **N.Emil J. Bjerrum-Bohr**

String Theory and Relations between Gauge theory and Gravity

Abstract:
We will discuss recent progress in the calculations of scattering amplitudes in gauge theory and gravity. Symmetries for amplitudes such as the newly discovered duality between color and kinematics will be considered as well as we will see how to use knowledge about amplitudes from string theory in computations.

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