SFB-Seminar Novel Methods for Perturbative QFT (Teilprojekt C4 und AEI)

ZEIT:
7.5.2013, 14:30 Uhr - 18:30 Uhr

ORT:
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

PROGRAMM:

14:30 - 15:00 Kaffee-Pause

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 Kaffee-Pause

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

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

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

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.

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