SFB-Seminar (C4) und Vollversammlung

ZEIT:
6.7.2015, 13:30 Uhr - 17:00 Uhr

ORT:
Humboldt-Universität zu Berlin
IRIS Gebäude, Vortragsraum 2.07
Zum Großen Windkanal 6
12489 Berlin-Adlershof

PROGRAMM:

13:30 - 14:00 Kaffee Pause

14:00 - 14:30 SFB-Vollversammlung

14:30 - 15:30 **Prof. Dr. Ralph Kaufmann (Purdue University Indiana)**

Feynman categories
Feynman categories provide a unified framework for operad-like structures arising in geometry, topology and physics.
Besides being the right arena in which to study common aspects, they provide a host of constructions relevant for perturbation and deformation theory. In this realm (quantum) master equations and BV operators appear naturally.
Lastly there are secondary structures, such as universal operations, which explain the ubiquity of (pre)-Lie algebras.
There are also new surprising structures arising in this context such as Hopf algebras. Examples are those of Goncharov
related to iterated integrals and multi-zeta values and that of Connes-Kreimer in renormalization.
We will give a survey of these aspects and provide examples.

15:30 - 16:00 Kaffee Pause

16:00 - 17:00 **Prof. Dr. Francis Brown (IHES / Oxford University)**

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From amplitudes to representations

Some deep ideas in algebraic geometry lead one to view certain numbers and functions as representations of a group.
For example, the number pi corresponds to a 1-dimensional representation, and values of the Riemann zeta function zeta(n) correspond to 1 or 2 dimensional representations depending if n is odd or even.
In this talk Prof. Dr. Francis Brown will explain how to attach a representation to a Feynman amplitude. This reveals many hidden structures amongst amplitudes - for example, to any amplitude there are notions of weights, symbols, and Galois conjugates.

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