Prof. Dr. Dirk Kreimer (IHES, Frankreich) Quantum Fields, Periods and Hopf algebras

TIME:
7 Apr 2009, 15:00 - 17:00

LOCATION:
HU, Institut für Mathematik, Rudower Chaussee 25, 12489 Berlin, 3.001 (ground floor)

Starting from the parametric representations of amplitudes in quantum field theory, we first derive the Hopf algebra structure underlying any perturbative expansion. We review next Zimmermann's forest formula of renormalization and the renormalization group from this viewpoint.

We then focus on number-theoretic questions arising from computations in particle physics, and discuss to what extent the periods obtained in such computations are periods of mixed Tate motives, and consider differences between periods obtained from planar and from non-planar diagrams in the perturbative expansion.

For further information please have a look at *http://math.bu.edu/people/dkreimer/structure.html*.

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