Kolloquium über Reine Mathematik

Einladung zu einem Vortrag

Dienstag, 21. Juni 2022

17 Uhr, Geom H4

Prof. Alexander Goncharov
(Yale University)

Arithmetic Analysis

Abstract:

Historically, a large part of Algebraic Geometry was developed by
Abel - Riemann - Jacobi - … to understand the properties of integrals.

I will explain new methods which allow to make precise predictions about a
wide class of integrals without calculating them. These methods, which sound
quite elementary, are based on deep ideas of the arithmetic theory of motives,
such as motivic Galois groups, originated by Grothendieck, Deligne, Beilinson,
…

Application of arithmetic analysis to the simplest kinds of iterated integrals
revealed surprising connections to the geometry of modular curves and more
generally locally symmetric spaces.

During the last 10+ years, arithmetic analysis was successfully used to understand/calculate scattering amplitudes in Quantum Field Theory. It is likely that it will become a part of the mathematical structure describing QFT's.

Vor dem Vortrag (ab 16.30 Uhr) stehen im Foyer vor Hörsaal H4 Kaffee und Tee bereit.