Fakultät für Mathematik

universität wien

Mathematisches Kolloquium

EINLADUNG

Dr. Vyacheslav P. Spiridonov

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"Special functions from Newton and Euler to the modern time"

Anschließend vinum cum pane

"Special functions from Newton and Euler to the modern time"

Abstract:

The theory of hypergeometric functions has started from Newton's binomial theorem. Euler created the mathematics of special functions as an art of mass production of beautiful formulae. His gamma and beta functions, an integral representation for the $_2F_1$-series, various q-series identities are the exemplary paintings in the handbook galleries. With the remarkable discoveries of Abel, Gauss, Jacobi, Weierstrass, Riemann, Barnes and many other prominent mathematicians there emerged an impression that the theory of special functions reached its natural limits and the intensity of research in this field dropped down. Only a few followup adherents continued to discover missed beauties, like it happened with the Askey-Wilson polynomials. The situation changed sharply at the turn of millenium with the discovery of a new class of transcendental functions called elliptic hypergeometric integrals, which unified all special functions of hypergeometric type and elliptic functions. Soon they have found a very important application in theoretical physics and since then the quantum field theory serves as the main source of new special functions. Most of them are connected with the Barnes multiple gamma function whose proper applications were dormant for almost a century. A principal aim of this talk is to describe the ideas behind the notion of elliptic hypergeometric functions with the elliptic beta integral as a key structural example.

Zeit: Mittwoch, 20. Jänner 2016
15.45 Uhr Kaffeejause,
16.15 Uhr Vortrag

Ort: Fakultät für Mathematik,
Oskar-Morgenstern-Platz 1,
Sky Lounge

Michael Schlosser
Harald Rindler