



Leibniz
Universität
Hannover

Oberseminar Analysis und Theoretische Physik

Prof. Dr. Margit Rösler

Universität Paderborn

The Laplace transform in the Dunkl setting

In the analysis on symmetric cones and the classical theory of hypergeometric functions of matrix argument, the Laplace transform plays an essential role. In an unpublished manuscript dating back to the 1980ies, I.G. Macdonald proposed a generalization of this theory, where the spherical polynomials of the underlying symmetric cone - such as the cone of positive definite matrices - are replaced by Jack polynomials with arbitrary index. He also introduced a Laplace transform in this context, but many of the statements in his manuscript remained conjectural. In the late 1990ies, Baker and Forrester took up these matters in their study of Calogero-Moser models, still at a rather formal level, and they noticed that they were closely related to Dunkl theory.

In this talk, we explain how Macdonald's Laplace transform can be rigorously established within Dunkl theory, and we discuss several of its applications, including Riesz distributions and Laplace transform identities for multivariate hypergeometric functions.

Part of the talk is based on joint work with Dominik Brennecken.

**Dienstag, 12.11.2024, 15:00 Uhr, Raum c311
Hauptgebäude der Leibniz Universität**

Dazu laden herzlich ein:

Prof. Dr. Wolfram Bauer, Prof. Dr. Joachim Escher, Prof. Dr. Johannes Lankeit,
Prof. Dr. Elmar Schrohe, Prof. Dr. Alexander Strohmaier,
Prof. Dr. Christoph Walker, PD Dr. Alden Waters