

Group Seminar
Symbolic Computation

SC: The Mathematica package qFunctions for q-series and partition theory applications

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Tuesday, December 3, 2019, 13:45
RICAM, SP2 416-1

Abstract

In this talk, I will demonstrate the new Mathematica package qFunctions while providing relevant mathematical context. This implementation has symbolic tools to automate some tedious and error-prone calculations and it also includes some other functionality for experimentation.

We plan to highlight the four main tool-sets included in the qFunctions package: (1) The q-difference equation(or recurrence) guesser and some formal manipulation tools, (2) the treatment of the method of weighted words and automatically finding and uncoupling recurrences, (3) a method on the cylindrical partitions to establish sum-product identities, (4) fitting polynomials with suggested well-known objects to guess closed formulas.

This talk is based on joint work with Jakob Ablinger (RISC).