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FAKULTÄT FÜR MATHEMATIK
Dekan Univ.-Prof. Dr. Radu Ioan Boț

Einladung zur öffentlichen Defensio

Chen WANG

Thema der Dissertation

Analytic aspects of Borwein-type sign pattern problems

Abstract:

This dissertation consists of two articles proving two of the famous Borwein conjectures using analytic methods.

In the first article, I gave the historically first proof of the original Borwein Conjecture, namely the coefficients of the “Borwein polynomials” $(1 - q)(1 - q^2)(1 - q^4)(1 - q^5) \cdots (1 - q^{3n-2})(1 - q^{3n-1})$ have a recurring sign pattern of $+-+-- \dots$, based on specific expansions due to Andrews.

In the second article, the methods used in the first proof are generalized and refined to a much broader setting, enabling an improved proof of the original conjecture and the proof of the Second Borwein conjecture predicting the same patterns for the square of the Borwein polynomials, as well as a partial proof of my own conjecture predicting the same patterns for the cube of the Borwein polynomials.

Prüfungssenat

Univ.-Prof. Mag. Dr. Andreas Cap
(Vorsitz, Universität Wien)

Univ.-Prof. Dr. Christian Krattenthaler
(Universität Wien)

Prof. Dr. George Andrews
(Pennsylvania State University)

Prof. Dr. Alexander Berkovich
(University of Florida)

Zeit und Ort

Montag, 23. Juni 2025, 16:00 Uhr

Online:

<https://univienna.zoom.us/j/61915776152?pwd=iyKzmwUOM8rhDJQ3N10uOGEbRTcgX7.1>

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