

On q -product expansions of modular forms

**Prof. Dr. Winfried Kohlen
Professor of Mathematics,
Faculty of Mathematics and Computer
Sciences,
University of Heidelberg**



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School of Physical and Mathematical Sciences**

Modular forms are (meromorphic) functions on the complex upper half-plane that satisfy simple transformation formulas under fractional linear transformations. In particular, a modular form has a Fourier expansion in the variable $q=e^{2\pi iz}$, and the Fourier coefficients often are interesting arithmetical functions. Modular forms are fundamental objects in complex analysis and number theory. What seems to be less known is that modular forms also have infinite product expansions of the form $\prod_n(1-q^n)^{c(n)}$ and the exponents $c(n)$ also often seem to carry important information on the function. For example, there is famous work by Borcherds that relates the exponents of modular forms with so called "Heegner divisors" to Fourier coefficients of modular forms of half-integral weight.

In this talk, I would like to show how these exponents can also be used to characterize those modular forms which do not have zeros or poles on the upper half-plane.

Speaker Biography:

Dr. Winfried Kohlen obtained his PhD (Univ. Bonn) in 1980 and has been a Professor of Mathematics at Univ. Heidelberg since 1994. His major subjects of interest include number theory and automorphic forms.

Host: Prof. Sinai Robins, Division of Mathematical Sciences, School of Physical and Mathematical Sciences

Queries to: Prof. Sinai Robins, rsinai@ntu.edu.sg, Tel: 6513 7468

SCHOOL OF PHYSICAL AND MATHEMATICAL SCIENCES

NANYANG TECHNOLOGICAL UNIVERSITY
SPMS-MAS-03-01, 21 NANYANG LINK, SINGAPORE 637371
FAX: +65 6515 8213 TEL: +65 6513 7423