

GEOMETRY & PHYSICS

SEMINAR

**Monday 04 Dezember 2023,
11h-12h, room 6.2.33**

Speaker: Jonathan Bradley-Trush (GFM, starting from January 2024)

Title: Elliptic functions and identities between basic hypergeometric series

Abstract: A basic hypergeometric series is an infinite series, $\sum u_n$, in which the ratio u_{n+1}/u_n of two successive terms is a rational function of q^n . Here q denotes a complex number (commonly known as 'the base') which is conventionally chosen such that $0 < |q| < 1$. Many identities between ordinary hypergeometric series have analogues in the theory of basic hypergeometric series; these are generally known as 'q-analogues'. After describing the q-analogues of some well-known identities, I will explain a connection between bilateral basic hypergeometric series and the theory of elliptic functions. I will illustrate this connection with some examples, including a very short proof of one of W.N. Bailey's transformation formulae. With emphasis on a particular identity from Jacobi's *Fundamenta Nova*, I will also discuss linear relations between certain infinite products.

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