SPEAKER: Walter Bridges (Univ. of Cologne)

TITLE: False modularity and partition statistics

ABSTRACT: I will discuss applications of (mixed) mock and false modular forms to the analytic theory of integer partitions. In particular, the rank statistic for unimodal sequences gives rise to a false Jacobi form, which - thanks to recent work of Bringmann and Nazaroglu - may be completed à la Zwegers. We develop a method to prove precise asymptotic series for the Taylor coefficients of such objects. We give two applications of such asymptotics: We (re-)derive the limiting distribution of the rank, and we prove log-concavity for the number of unimodal sequences of size n.

This is joint work with Kathrin Bringmann.