

SPEAKER: Martin Raum (Chalmers Univ. of Technology, Sweden)

TITLE: The Maass lift of harmonic Maass Jacobi forms

ABSTRACT: From a historical perspective, the Maass lift from holomorphic Jacobi forms to holomorphic Siegel modular forms was the first explicit lift to modular forms for higher rank groups. The image of many of such lifts is understood by now in terms of Arthur's classification. The Maass lift, however, has never been generalized beyond the holomorphic/meromorphic case, despite its contemporary importance to, e.g., string partition functions.

I will speak about ongoing efforts joint with Olav Richter towards a Maass lift of skew-holomorphic Jacobi forms and eventually harmonic weak Maass Jacobi forms. At an intermediate stage, we have completely constructed a Maass lift of harmonic Maass Jacobi forms, based on a theory of asymptotic expansions for specific real-analytic Siegel modular forms.

Highlights among the (anticipated) results that I plan to discuss are:

- (1) The explicit construction of the second constituent of the A-packet for the holomorphic Saito-Kurokawa lift.
- (2) An analysis of the constant term of these Saito-Kurokawa lifts that recovers the associated period polynomial for elliptic modular forms.
- (3) The proof that only one Eisenstein series contributes to a specific part of the automorphic spectrum, providing methods that possibly generalize to other cases and do not rely on functional analysis.