
THE WEIZMANN INSTITUTE OF SCIENCE
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE
Algebraic Geometry and Representation Theory Seminar

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<https://weizmann.zoom.us/j/98304397425>
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A reduction principle for Fourier coefficients of automorphic forms

Abstract:

We consider a general class of Fourier coefficients for an automorphic form on a finite cover of a reductive adelic group $G(A_K)$, associated to the data of a 'Whittaker pair'. We describe a quasi-order on Fourier coefficients, and an algorithm that gives an explicit formula for any coefficient in terms of integrals and sums involving higher coefficients. The maximal elements for the quasi-order are 'Levi-distinguished' Fourier coefficients, which correspond to taking the constant term along the unipotent radical of a parabolic subgroup, and then further taking a Fourier coefficient with respect to a K -distinguished nilpotent orbit in the Levi quotient. Thus one can express any Fourier coefficient, including the form itself, in terms of higher Levi-distinguished coefficients. In follow-up papers we use this result to determine explicit Fourier expansions of minimal and next-to-minimal automorphic forms on split simply-laced reductive groups, and to obtain Euler product decompositions of their top Fourier coefficients. This is joint work with Dmitry Gourevitch, Henrik P. A. Gustafsson, Axel Kleinschmidt, and Daniel Persson <https://arxiv.org/abs/1811.05966>