
THOMAS RÜD, MIT

Jacquet–Rallis Transfer for ramified unitary groups and the Arithmetic Transfer Conjecture

One aspect of relative Langlands program is, given a group G and spherical subgroup H , detecting whether a representation $\pi \subset L^2(G(\mathbb{A}))$ "comes from" a representation of H by a conjectural transfer. This detection relies on the vanishing of period integrals, which themselves are related to the vanishing of automorphic L -functions. For unitary groups, such periods can also be expressed as a generalization of heights of some points in a Shimura variety.

The linear case of Rankin–Selberg Flicker–Rallis periods is historically well-studied, and the modern approach on unitary groups suggested by Gan–Gross–Prasad is to reduce to these two cases by means of the relative trace formula.

The problem is solved for unramified local unitary groups but remains open even in low-dimensional ramified local fields. In this talk I will present what is known and how this relates to orbital integrals and the Arithmetic Transfer Conjecture for Shimura varieties. I will then formulate a conjecture establishing an explicit transfer in the ramified setting, together with a proof for rank one groups. This is joint work with Wei Zhang.