

Shalika germs and their application to relative trace formula

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Abstract: One of the main tool in the Langlands beyond endoscopy is relative trace formulas (RTF) related to the groups. Roughly speaking, they are identity between two expansions of certain kernel integral known as “geometric expansion” and “spectral expansion”. The terms of spectral expansion keep track the information of representations (of the group which we consider). The terms of geometric expansion are explicit (orbital integrals) but complicated. By comparing the geometric expansion side of two relative trace formulas of two group G, G' , we then obtain a relation between the representations of G and G' .

Note that, the geometric side of RTF is a sum of orbital integrals where the indices run through orbits of certain group action. In practice, we usually do (know) the comparison for some special orbit. For a general one, it is a hard problem (at least to the presenter of this talk).

In this talk, I shall explain the notion of Shalika germs and use it to bypass the problem for certain type of orbital integrals.