



THE WEIZMANN INSTITUTE OF SCIENCE

FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Algebraic Geometry and Representation Theory Seminar

on Wednesday, Oct 21, 2020
at 16:30

<https://weizmann.zoom.us/j/98304397425>

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On multiplicativity of gamma-factors and Fourier transforms via Braverman-Kazhdan program

Abstract:

This is a joint work with my student William Sokurski. Braverman-Kazhdan/Ngo program aims to generalize the work of Godement-Jacquet/Tate from $GL(n)$ to an arbitrary reductive group G and a finite dimensional representation r of its L -group. We briefly review the general concepts of the method, including Renner's construction of reductive r -monoids, objects generalizing the space of $n \times n$ matrices in the case of $GL(n)$, concluding with the example of symmetric power representations of $GL(2, \mathbb{C})$.

We then define a space of r -Schwartz functions in terms of the restriction of the conjectural r -Fourier transform to the space of smooth functions of compact support in G , as in the work of Braverman and Kazhdan. Multiplicativity which states the equality of gamma factors for the parabolically induced and inducing data, follows from a natural commutativity of corresponding Fourier transforms on G and the Levi subgroup L , sharing the fixed maximal torus defining the monoid, with a generalized Harish-Chandra transform. We finally present a candidate for the Fourier transform attached to the symmetric cube of $GL(2, \mathbb{C})$ as a fiber integration over the compact-inducing data for tamely ramified supercuspidals of $GL(2)$ constructed by Howe and Bushnell-Kutzko, as predicted by Ngo. This last result is part of Sokurski's thesis which can be extended to all the odd symmetric powers.

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