Automorphic-twisted summation formulae for pairs of quadratic spaces

Miao (Pam) Gu
Duke University

Midwest Representation Theory Conference

March 2022

Outline

1. Poisson Summation Conjecture for Spherical Varieties
2. Automorphic-twisted Summation Formula

Poisson Summation Conjecture for Spherical Varieties

F: number field, $\mathbb{A}_F$: Adele ring

Braverman-Kazhdan, Ngô, Lafforgue, Sakellaridis

Poisson Summation Conjecture: *8* spherical G-variety X, *9*

Schwartz space

$$\mathcal{S}(X(\mathbb{A}_F)) = \quad {}^{0}_{v}\mathcal{S}_v(X(F_v))$$

w.r.t. basic functions $\quad {}_v$ *2* $\mathcal{S}_v(X(F_v))$ at each unramified place v

Fourier transform $\mathcal{F}$

P.S.F. for X

See also work in special cases by Jiang, Luo, Shahidi, Sokurski, Zhang.....

Poisson Summation Conjecture for Spherical Varieties

P.S.C) F.E. and mero. cont. for fairly general Langlands L-functions $\overset{\text{converse theorem}}{!}$ Langlands Functoriality

It is important to have a supply of global results on which to build

Summation formula attached to quadratic spaces

Getz-Liu, Getz-Hsu, Getz-Hsu-Leslie

- Poisson Summation Formula for a spherical variety which is built out of triple of quadratic spaces
- First proven case where the underlying scheme is not a ag variety
- Trick: substituting theta function on SL_2^3 into Garrett's integral