



Number Theory Seminar

Orbital integrals of GL_n over non-archimedean fields

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Abstract

In 2014 Zhiwei Yun introduces a local L-factor whose special value at $S = 0$ computes the local orbital integral of type A.

These L factors are controlled by the geometry of affine Springer fibers, more precisely the Hilbert scheme of points for the related plane curve singularity. In this talk, we will explain a conjectural combinatorial formula of Cherednik for these L factors base on the affine paving for compactified Jacobians by Piontkowski. The affine paving is known to exist for compactified Jacobian in the generic case by work of Gorsky, Mazin and Oblomkov in 2024. Under the same setup, I will explain my ongoing work with Su Tao extending the previous work to show the existence of affine pavings for the Hilbert scheme of points and relating the affine cells to Young diagrams. As application, we apply our results to deduce a conjecture by Cherednik claiming that these local L-factors satisfy the Weil conjecture.

Date: July 9, 2025 (Wednesday)

Time: 2:30 – 3:30 pm

Venue: Room210, Run Run Shaw

Building HKU

All are welcome