



The Hebrew University of Jerusalem

Syllabus

Advanced seminar on representations of p -adic groups - 80853

Last update 27-08-2022

HU Credits: 2

Degree/Cycle: 2nd degree (Master)

Responsible Department: Mathematics

Academic year: 2023

Semester: 1st Semester

Teaching Languages: Hebrew

Campus: E. Safra

Course/Module Coordinator: Prof Yakov Varshavsky

Coordinator Email: yakov.varshavsky@mail.huji.ac.il

Coordinator Office Hours: by appointment

Teaching Staff:

Prof Yakov Varshavsky

Course/Module description:

The goal of the seminar (jointly delivered with Avraham Aizenbud, Dmitry Gourevitch, Eitan Sayag and David Kazhdan)

"Finiteness for Hecke algebras of p -adic groups" is to describe a recent paper "Finiteness for Hecke algebras of p -adic groups"

<https://arxiv.org/abs/2203.04929>

by Jean-Francois Dat, David Helm, Robert Kurinczuk, Gilbert Moss.

Let G be a reductive group over a non-archimedean local field F of residue characteristic p . The main goal is to prove that the Hecke algebras of $G(F)$ with coefficients in a \mathbb{Z}_l -algebra R for l not equal to p are finitely generated modules over their centers, and that these centers are finitely generated R -algebras. Following Bernstein's original strategy, we will then deduce that "second adjointness" holds for smooth representations of $G(F)$ with coefficients in any ring R in which p is invertible. These results had been conjectured for a long time. The crucial new tool that unlocks the problem is the Fargues-Scholze morphism between a certain "excursion algebra" defined on the Langlands parameters side and the Bernstein center of $G(F)$.

Course/Module aims:

see above

Learning outcomes - On successful completion of this module, students should be able to:

see above

Attendance requirements(%):

100

Teaching arrangement and method of instruction: see above

Course/Module Content:

see above

Required Reading:

see above

Additional Reading Material:

see above

Course/Module evaluation:

End of year written/oral examination 0 %

Presentation 0 %

Participation in Tutorials 0 %

Project work 0 %

Assignments 0 %

Reports 0 %

Research project 0 %

Quizzes 0 %

Other 100 %

to be decided

Additional information:

see above