THE WEIZMANN INSTITUTE OF SCIENCE
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Algebraic Geometry and Representation Theory Seminar

Room 155, Ziskind Building
on Wednesday, Nov 10, 2021
at 17:00

starting Nov 10, the seminar will meet once in two weeks, at 17:00 Israel time

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Affine Springer fibers and depth zero L-packets.

Abstract:

Let G be a connected reductive group over F = F_q((t)), splitting over a maximal unramified extension.
To every tamely ramified Langlands parameter \( \lambda \) in general position gives rise to a finite set \( \Pi_{\lambda} \) of irreducible admissible representations of \( G(F) \), called the L-packet.

The goal of this talk is to provide a geometric description of characters \( \chi_{\pi} \) of all \( \pi \in \Pi_{\lambda} \) in terms of homology of affine Springer fibers. As an application, we give a geometric proof of the stability of sum \( \chi^{st}_{\lambda} := \sum_{\pi \in \Pi_{\lambda}} \chi_{\pi} \).

Furthermore, we show that the \( \chi^{st}_{\lambda} \)'s are compatible with inner twistings.

This is a joint work with Roman Bezrukavnikov (https://arxiv.org/abs/2104.13123), and is a first step in a joint outgoing project of the two of us with David Kazhdan, whose goal is to obtain similar results for general depth zero representations.