

Representation Theory of Matrix Groups over Non-archimedean Local Fields

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Abstract: Representation theory of p -adic group is one of the most important tools in Langlands program, which roughly states that the L -functions arising in number theory are special realization of L -functions of automorphic representations. These objects are global and by local-global principle, such objects can be analyzed purely locally. This is one of the motivations to study local representation theory.

Also one of the conjectures in the Langlands program called local Langlands conjecture predicts a connection between representation theory of p -adic groups with the representation theory of the Galois group of the p -adic field. Therefore it is a non-abelian generalization of abelian local class field theory.

In this talk, I will give an elementary introduction to representation theory of p -adic groups via the basic example of $GL(2)$ and some recent results that we obtained for the p -adic matrix group $GSp(4)$.

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