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On the ordinary representations in the p -modular Langlands program

The weight part in the generalized Serre's conjectures gives us deep information on the local factor at p of isotypical components in certain spaces of p -modular quaternionic forms, providing evidence for local-global compatibility phenomena in a hypothetical p -modular Langlands correspondence.

Nevertheless the theory of p -modular representations of p -adic groups turns out to be extremely delicate and there seem to be many parameters in the local factor at p which are invisible to its socle with respect to a maximal compact subgroup.

The aim of this talk is to establish some tools which let us deeply investigate the local automorphic representations of $\mathbf{GL}_2(\mathbf{Q}_p)$ appearing the p -modular Langlands correspondence. This is done by purely local means, describing such objects in terms of representation theory of appropriate compact subgroups and letting one detect some of their arithmetic invariants.