

December 12: David Vogan (MIT), “Local Langlands conjecture and representations of finite Chevalley groups.”

This is a continuation of my November 21 talk concerning local Langlands conjectures and representations of compact subgroups (of reductive groups over local fields). That talk turned out to be more about the number-theoretic motivation than about finite Chevalley groups, so most of the same abstract still applies . . .

I will begin with a definition due to Macdonald of a Weil group for a finite field. Macdonald used his definition to formulate Green’s classification of the representations of $GL(n, \mathbb{F}_q)$ in a way analogous to the local Langlands conjecture. Deligne-Lusztig and Lusztig extended Green’s results to any finite Chevalley group; I’ll explain how to correspondingly extend Macdonald’s formulation. The result appears at first to have some weaknesses (more parameters than representations); the conjectures I want to emphasize “explain” these weaknesses in terms of representations of a p -adic group.