

November 21: David Vogan (MIT), “Local Langlands conjecture and representations of compact groups.”

This is a reprise of two talks I gave here in 2016 (February 3 and March 30). I am choosing to repeat them because (a) I want to emphasize some rather concrete conjectures about p -adic groups that should be accessible; (b) the other two talks in November were already p -adic, so this seemed to fit; (c) it’s the day before Thanksgiving, so few people will show up; and (d) it’s my seminar and I can sometimes make the rules.

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.