

December 7: Dan Ciubotaru (University of Utah), *The Dirac operator and spin representations of Weyl groups*.

Followed by dinner.

In recent joint work with Dan Barbasch and Peter Trapa, we defined an analogue of the Dirac operator in the context of graded affine Hecke algebras of p -adic groups, established a version of Parthasarathy's inequality, and proved a version of Vogan's conjecture for Dirac cohomology. The formula for the square of the Dirac operator introduced an interesting central element in the group algebra of a Pin cover of the Weyl group which behaves like a Casimir element for spin projective representations of the Weyl group. In this talk, I will present the above constructions, certain connections between projective representations, Springer theory, and elliptic theory of the Weyl group, and explain some applications to unitary representations of the Hecke algebra (and p -adic groups).