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On formal degrees for discrete series of classical affine Hecke algebras

The (expected) stability of L -packets of discrete series for p -adic groups implies that the formal degrees of the discrete series in the same L -packet have to be proportional. In Lusztig's category of representations with unipotent cuspidal support, this problem can be translated to one for affine Hecke algebras with unequal parameters. Following Reeder, Opdam, and Solleveld, the formal degree of a discrete series for affine Hecke algebras are known up to a rational constant (depending on the discrete series). Reeder conjectured a precise form for this constant, and verified this for the Hecke algebras arising for split exceptional groups. In joint work with Syu Kato, we compute the missing constants for the affine Hecke algebras of classical types with unequal parameters. The method of calculation is a consequence of a new algorithm for the W -structure of tempered modules for these Hecke algebras, based on Kato's exotic geometry.

This is joint work with Syu Kato.