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Representation-theoretic consequences of the geometry of Vogan varieties.

Building on the work of Zelevisnky and the cases for real and complex groups, Davis Vogan purposed a p-adic Kazhdan-Lusztig hypothesis (p-KLH): The dimensions of stalks of perverse sheaves on varieties V_λ of Langlands parameters having fixed infinitesimal parameter λ, should coincide with multiplicities of irreducible representations of infinitesimal parameter λ in standard representations. Moreover, Vogan defined what we call ABV-packets in terms of the microlocal geometry of V_λ, and purposed that these coincide with Arthur's A-packets.

We will discuss recent work which, under the assumption of the p-KLH, proves a conjecture of Gross-Prasad that an L-packet $\Pi_\phi(G)$ contains a generic representation if and only if $L(s, \phi, \mathrm{Ad})$ is regular at $s = 1$. We also discuss implications for Shahidi's enhanced genericity conjecture, and an analogue for ABV-packets. Time permitting, we may also offer some speculation as to the relationship between Arthur parameters and orbits of smooth closure.