April 8: Paul Baum (PSU), "Geometric structure in the representation theory of reductive p-adic groups. FOLLOWED BY DINNER. Let G be a reductive p-adic group. The smooth (or admissible) dual of G is the set of equivalence classes of smooth irreducible representations of G. There is a standard bijection between the smooth dual of G and the set of primitive ideals in the Hecke algebra of G. Hence the smooth dual can be given the Jacobson topology. The Bernstein components of the smooth dual are then the connected components in this topology. Bernstein associates to each such component a complex torus T and a finite group J acting as automorphisms of the affine variety T. The infinitesimal character maps the component onto the quotient variety T/J. This talk states a conjecture according to which each component has the structure of a complex affine variety with the infinitesimal character then becoming a morphism of affine varieties. More precisely, the component is, conjecturally, in bijection with the "extended quotient" and the infinitesimal character is obtained from the projection of the extended quotient onto the ordinary quotient T/J by deforming by a finite set of cocharacters of Bernstein's torus T. "Extended quotient" will be carefully defined in the talk. If correct, the conjecture implies that a simple geometric structure underlies the intricate and delicate calculations that are required to determine smooth duals.