1056-22-136 **Paul Frank Baum*** (baum@math.psu.edu), Mathematics Department, McAllister Building, Pennsylvania State University, University Park, PA 16802. *Geometric Structure in the Representation Theory of Reductive p-adic Groups.*

Let G be a reductive p-adic group. The admissible dual of G is the set of equivalence classes of smooth irreducible representations of G. Contained within the admissible dual is the tempered dual of G, i.e. the set of equivalence classes of smooth irreducible representations of G having tempered Harish-Chandra character. The admissible dual of G is in bijection with $Prim(HG)$ where HG denotes the Hecke algebra of G. Thus HG is the convolution algebra of all locally-constant compactly-supported complex-valued functions on $G.Prim(HG)$ denotes the set of primitive ideals in HG. If $Prim(HG)$ is given the Jacobson topology, $Prim(HG)$ is then the disjoint union of its connected components. These connected components are known as the Bernstein components. This talk explains a conjecture due to A.M.Aubert, P.F.Baum and R.J.Plymen. According to the conjecture, each Bernstein component is a complex affine variety. These varieties are explicitly identified as extended quotients. The tempered representations within each Bernstein component form the associated compact orbifold extended quotient. The conjecture is based on the theory of the Bernstein center, and if correct further develops this theory. (Received July 31, 2009)