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Nolan R Wallach*, Department of Mathematics, University of California, San Diego, La Jolla, CA 92093. *On the GK dimension of a (\mathfrak{g}, K) module.* Preliminary report.

We study the Gelfand-Kirillov dimension of a (\mathfrak{g}, K) -module using the theory Jacquet modules. For example, we analyze the relative sizes of the discrete series representations. In particular, for a Hermitian pair the holomorphic or anti-holomorphic discrete series attain the unique minimum. If the pair is quaternionic then we show that if it is not also Hermitian then the quaternionic discrete series attain the unique minimum. One basic ingredient in the study is the analysis of irreducible (\mathfrak{g}, K) -modules as modules for enveloping algebras of unipotent subalgebras of \mathfrak{g} . Most of the results are known in other forms through the work of the Atlas group. The novel aspects of the work involve the module theoretic methods. (Received September 21, 2012)