1017-22-27 **David A. Vogan*** (dav@math.mit.edu), Room 2-281, MIT, 77 Massachusetts Avenue, Cambridge, MA 02139. *Cohomological induction and irreducible representations.*

Let K be a maximal compact subgroup of a real reductive group G, with corresponding Cartan involution θ. Let $\mathfrak{q} = \mathfrak{l} + \mathfrak{u}$ be a θ-stable parabolic subalgebra of the complexified Lie algebra $\mathfrak{g}$, and L the normalizer of $\mathfrak{q}$ in G. Zuckerman's cohomological induction begins with an irreducible $(\mathfrak{l}, L \cap K)$-module Z and forms the "generalized Verma module" $V = U(\mathfrak{g}) \otimes_{\mathfrak{q}} Z$, which is a $(\mathfrak{g}, L \cap K)$-module. Finally he applies to V the "(Bernstein)-Zuckerman functors" L_p, which carry $(\mathfrak{g}, L \cap K)$-modules to $(\mathfrak{g}, K)$-modules. The "cohomologically induced representations" are $L_p(V)$.

In this setting, suppose J is any irreducible subquotient of the generalized Verma module V. I will show that $L_p(J)$ is always a direct sum of irreducible representations, which can be computed explicitly using the (proved) Kazhdan-Lusztig conjectures.

This work is motivated by Wai Ling Yee's recent calculation of the signatures of invariant Hermitian forms on J (in case L is abelian). The hope is that her work will in turn determine the signatures of induced forms on $L_p(J)$. (Received January 23, 2006)