1023-22-1597 **Donald R King*** (d.king@neu.edu), 567 Lake Hall, Math Dept, Northeastern University, Boston, MA 02115. *Small spherical nilpotent orbits and K-types of Harish Chandra modules.* Preliminary report.

Let G be the adjoint group of a semisimple Lie algebra $\mathfrak{g}$ and K be a maximum compact subgroup. $\mathfrak{g}_{\mathbf{C}}$ and $\mathfrak{k}_{\mathbf{C}}$ are the complexified Lie algebras of G and K. $\mathfrak{p}_{\mathbf{C}}$ is the usual complement to $\mathfrak{k}_{\mathbf{C}}$ in $\mathfrak{g}_{\mathbf{C}}$. $K_{\mathbf{C}}$, the complexification of K, acts on $\mathfrak{p}_{\mathbf{C}}$. Choose a nilpotent $e \in \mathfrak{p}_{\mathbf{C}}$ of height two and let $\mathcal{O}$ be its $K_{\mathbf{C}}$ orbit. $\mathcal{O}$ determines the $K_{\mathbf{C}}$ orbit of a semisimple element $x \in \mathfrak{k}_{\mathbf{C}}$. Choose a Borel subalgebra $\mathfrak{b} = \mathfrak{h} \oplus \mathfrak{n}$ of $\mathfrak{k}_{\mathbf{C}}$, where $\mathfrak{h}$ is a Cartan subalgebra containing x. The ring $\mathcal{R}$ of $\mathfrak{n}$-invariant regular functions on $\overline{\mathcal{O}}$, the Zariski closure of $\mathcal{O}$, is a polynomial algebra. Let $\mu_1, \ldots, \mu_r$ be the highest weights of a set of generators. Suppose that $\mathbf{X}$ is an irreducible $(\mathfrak{g}_{\mathbf{C}}, K)$ module whose associated variety is $\overline{\mathcal{O}}$. If V is the 2-eigenspace of $ad(x)$ on $\mathfrak{p}_{\mathbf{C}}$, then $U(V)$, the enveloping algebra of V, acts locally injectively on $\mathbf{X}$ and the asymptotic directions of the K-types of $\mathbf{X}$ are determined by the μ_i. (Received September 26, 2006)