November 1: David Vogan (MIT), *Examples of discrete series (after Krötz, Kuit, Opdam, and Schlichtkrull).*

Suppose $H \subset G$ are reductive groups, and that H has an open orbit on the real flag manifold $G/P_{\min}$. (Such a subgroup is called *spherical*.) When H is a symmetric subgroup of G, there is a complete Plancherel formula known for $L^2(G/H)$. Schlichtkrull spoke on October 17 about his work with Krötz, Kuit, and Opdam on some properties of the discrete spectrum of $L^2(G/H)$. I'll look at some interesting examples of non-symmetric spherical homogeneous spaces, including

$$S^{2n-1} = U(n)/U(n-1), \qquad S^{4n-1} = Sp(n)/Sp(n-1),$$

$$S^7 = \mathrm{Spin}(7)/G_2, \qquad S^{15} = \mathrm{Spin}(9)/\mathrm{Spin}(7),$$

and noncompact forms. I'll say something about how the spectrum of invariant differential operators on these compact spaces constrains the spectrum on the noncompact forms, and I'll compute the discrete series completely in some examples.