1106-55-2823 **Jeffrey D. Carlson*** (jeffrey.carlson@tufts.edu), Department of Mathematics, Tufts University, 503 Boston Ave., Medford, MA 02155. *Circle subgroups of compact Lie groups.*

Let G be a compact, connected Lie group and S a circle subgroup; then S naturally acts on the left on the quotient G/S. Given a de Rham cohomology class $[\omega]$ on G/S, there sometimes exists an "S-equivariant extension," which allows one to localize the integral of ω over an S-invariant subset of G/S to a subset of the fixed point set. While explicit expressions for these extensions can be difficult to find, whether such an extension exists for all cohomology classes (a condition called "equivariant formality") can be determined solely in terms of the dimension of the cohomology ring of G/S and the number of components (1 or 2) of the normalizer N of S.

This reduction turns equivariant formality for this class of spaces into a geometric problem about an embedding of a circle in a group. The cohomology ring of G/S has a simple description already outlined by Jean Leray in 1946, and the action of the normalizer N on S either is trivial or induces a reflection. In this talk, I will describe this ring structure and tell which circles are reflected. The most interesting case is that of the exceptional group E_6, where we determine a reflected circle must be conjugate into a Spin(8) subgroup. (Received September 16, 2014)