

Lie Group and Representation Theory Seminar

Date: March 23 (Fri), 2007, 10:30–11:30
Place: Room 402 RIMS, Kyoto University
Speaker: R. Stanton (Ohio)
Title: Symplectic constructions
for extraspecial parabolics.

Abstract: The minimal nilpotent orbit in a simple, say, complex Lie algebra has interaction with several topics. In work joint with M. Slupinski, we are investigating the Heisenberg grading associated to any element of the orbit. Röhrle [’93] referred to the corresponding Jacobson-Morozov parabolic as an extraspecial parabolic, and parametrized the orbits of the Levi subgroup acting on the nilradical modulo the center. Using exclusively methods from symplectic geometry, we shall re-examine this representation of the Levi subgroup. We shall classify orbits using the moment map; examine the symplectic nature of each of the orbits; give symplectic constructions of distinguished subgroups that occur in Rubenthaler’s list of reductive dual pairs. In particular, we give a symplectic construction of the exceptional simple group G_2 .

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