

Lie Group and Representation Theory Seminar

Date: June 29 (Tue), 2004, 17:00–18:00

Place: RIMS 402

Speaker: 西山 享 (Nishiyama Kyo) 氏 (Kyoto Univ.)

Title: Lifting of unimodular congruence classes of bilinear forms to the GL_n -orbits in an affine Grassmannian cone

Abstract:

Recently Djokovic-Sekiguchi-Zhao and Ochiai are studying the unimodular congruence classes of bilinear forms.

The invariant ring of the unimodular action on the space of bilinear forms is known to be a polynomial ring, which means the affine categorical quotient is an affine space. In spite of it, one of the results of DSZ tells us that the null cone contains infinite number of orbits, which are not separate by invariants. While Ochiai proved that the nilpotent orbits in the null cone can be classified inductively.

In this talk, we consider a correspondence between the unimodular congruence classes and certain GL_n -orbits in the affine Grassmannian cone. The correspondence is related naturally to the actions of symplectic groups and orthogonal groups again on an affine cone of Grassmannian (as already implicitly pointed out by Ochiai). These actions in turn naturally comes from the adjoint action of a Levi subgroup on the nilpotent radical of parabolic subgroups.

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