

Queen's Algebraic Geometry — Seminar —

GENERALIZED HARISH-CHANDRA MODULES AND GENERALIZED INDUCTION

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Abstract

Two major tools in representation theory are: 1) restricting representations to compact subgroups since the representation theory of compact groups is well understood (this leads to the category of Harish-Chandra modules) and 2) exploiting joint eigenspaces of a Cartan (weight theory, which leads to Category \mathcal{O}). Motivated by combining the theory of compact groups with highest weight theory, we define mixed subgroups. The category of (\mathfrak{g}, M) modules, where M is a mixed subgroup, generalizes both Category \mathcal{O} and the category of Harish-Chandra modules: they can be recovered by choosing M appropriately. We classify the irreducibles in $C(\mathfrak{g}, M)$. We relate certain equivalence classes of mixed subgroup orbits on the flag variety and on block to such orbits on flag varieties and blocks for smaller generalized Harish-Chandra pairs and discuss the associated correspondence of representations via generalized induction. This is joint work with Annegret Paul and Siddhartha Sahi.

Monday, February 2, 2009
4:30pm – 5:30pm
319 Jeffery Hall