

Queen's Algebraic Geometry — Seminar —

ON THE UNITARY DUAL OF REAL SPLIT GROUPS

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Abstract

One of the biggest challenges in representation theory is the computation of the unitary dual of real reductive groups (i.e. the classification of all the unitary irreducible representations).

The theory of unitary representations has important applications to abstract harmonic analysis, and originated in the past century with an attempt to extend classical Fourier analysis to non-commutative groups. In spite of the extremely significant contributions made by Langlands, Harish-Chandra and many other mathematicians, the problem of finding the unitary dual is still open: to this day, a complete answer is known only for G_2 , $SL(2, \mathbb{R})$, $GL(n, \mathbb{R})$ and for complex algebraic groups.

As a step towards solving the problem for real split groups, it is important to determine necessary conditions for unitarity of representations. In this talk, I will discuss the role of petite K -types in providing non-unitarity certificates for representations. This is joint work with Dan Barbasch.

Monday, April 2, 2007
4:30pm – 5:30pm
115 Jeffery Hall