

HARISH-CHANDRA'S ASYMPTOTIC EXPANSION AND DECOMPOSITION OF REPRESENTATIONS

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Abstract:

Irreducible unitary representations of semisimple Lie groups, and other admissible representations, have K -finite matrix coefficients that admit asymptotic expansions at infinity, and in the higher rank case, there are different ways of approaching infinity and different expansions for each of these ways.

We show that the expansion as one approaches infinity "away from the walls of the Weyl chamber" controls the behaviour of all matrix coefficients in all directions.

This may be used to control the representations that appear in the decomposition of a general unitary representation in a much more precise way than was previously known.