Unitary algorithm for real reductive groups

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Abstract

In this talk, we follow a paper by Adams-van Leeuwen-Trapa-Vogan, to introduce an algorithm for computing the irreducible unitary representations of a real reductive group G. By Langlands classification, any irreducible representation is exhibited with an invariant Hermitian form as a deformation of a unitary representation from the Plancherel formula. This "unitary algorithm" traces the signature of the form through this deformation, counting changes at reducibility points. Furthermore, we will present the potential work to generalize this algorithm to a nonlinear double cover of a real reductive group.