On the unitary dual of classical and exceptional real split groups

The purpose of this talk is to give an exposition of some recent progress on the computation of the unitary dual of real reductive Lie groups.

Our focus will be on Langlands quotients of minimal principal series of *split* groups. The unitarity of these representations is a consequence of the positivity of a (rather complicated) intertwining operator on an infinite set of representations of the maximal compact subgroup K of G, hence it is very hard to assess. An easier problem consists in determining which parameters are certainly *not unitary*. In this talk, I will discuss the role of petite K-types in providing non-unitarity certificates for representations of real and exceptional split groups.