

Research Highlight: Representations of real or p -adic reductive groups.

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This paper is a continuation of my study in the representations theory of reductive groups. For p -adic groups, not all irreducible admissible representations could be obtained from subquotients of parabolic inductions. Such representations are known as supercuspidal representations. By the works of Yu, Kim and Hakim-Murnaghan, we have a parameterization and construction of all supercuspidal representations of a reductive p -adic group in terms of supercuspidal data, when the p is sufficiently large.

In this paper, we will define a correspondence of supercuspidal data via moment maps and theta correspondences over finite fields. Then we will show that local theta correspondences between supercuspidal representations are completely described by this notion. We also give a short proof of a result of Pan on "depth preservation".

Reference:

H.Y. Loke and J.J. Ma, "Local Theta Correspondences of Supercuspidal Representations". *Annales Scientifiques de L Ecole Normale Superieure*, 51(4) (2018): 927-991.