

Séminaire Groupes Réductifs et Formes Automorphes

Le 7 octobre 2019 à 10h30 (Jussieu)

Unipotent representations and theta correspondence.

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Résumé :

I will present a recent work with Binyong Sun and Chengbo Zhu on unipotent representations of real classical groups (real symplectic groups, real orthogonal groups, quaternionic orthogonal groups or quaternionic symplectic groups). These are certain irreducible admissible representations characterized by their associated varieties and infinitesimal characters. They suppose to form the unipotent Arthur packet and are related to the quantization of nilpotent orbits. Barbasch and Vogan established the theory of special unipotent representations for complex groups and unitary groups. They also made conjectures for the general case, including a conjecture that unipotent representations attached to special nilpotent orbits are unitarizable. In 90's, thanks to many peoples work, it becomes clear that iterated theta lifting could be an effective way to construct unipotent representations of real classical groups. In our work, we constructed all unipotent representations attached to quasi-disdistinguished nilpotent orbits utilizing algebraic and analytic properties of theta lifts. The unitarity of these representations follows from the construction, thanks to Jian-shu Li, Hongyu He and Harris-Li-Sun's results on matrix coefficients integral. The construction of unipotent representations attached to a general special unipotent is working in progress (joint with Barbasch, Sun and Zhu).