Du
24
FÉV.
2025
au
28
FÉV.
2025

09h00
-
18h00

2025-T1 REPRESENTATION THEORY AND NONCOMMUTATIVE GEOMETRY

Tempered representations and K-theory

Institut Henri Poincaré
Amphithéâtre Hermite
11 rue Pierre et Marie Curie
75005 Paris

INSCRIPTION

Representation Theory and Noncommutative Geometry

Workshop: Tempered representations and K-theory

February 24 to 28, 2025 - IHP, Paris

Summary

URL de la page : https://www.ihp.fr/fr/agenda/tempered-representations-and-k-theory

The classification of tempered irreducible representations for real reductive groups was completed in the 1970s by Knapp and Zuckerman, following Harish-Chandra's work on the Plancherel formula. But some aspects of the subject are now undergoing a re-examination, following the discovery of new perspectives. C*-algebras and K-theory are valuable tools in Representation Theory, as shown, for instance, by the Mackey bijection. Indeed, it was the Connes-Kasparov isomorphism in K-theory that motivated the search for a natural bijection between the tempered dual of a real reductive group and the unitary dual of its Cartan motion group, as initially suggested by Mackey in the 1970s.

The meeting will focus on recent developments in which K-theoretic ideas have offered new perspectives on the tempered dual for reductive groups or symmetric spaces, and conversely on new approaches to operator-algebraic problems using contemporary tools in representation theory.

Topics will include:

- New approaches to the Mackey bijection through *pseudodifferential operator theory*, which has itself undergone an extensive conceptual redesign in the past decade, thanks again to C^*-algebra K-theory connections.
- New perspectives on the the Connes--Kasparov isomorphism using *Dirac cohomology and cohomological induction;*
- *Higher orbital intergrals*, which make it possible to go beyond the ``noncommutative topology of the tempered dual'', hinting at something like the ``differential geometry'' of this noncommutative space.
- Study of the *Casselman--Schwartz algebras* and their K-theory via Paley--Wiener theorems, and connections with the Connes--Kasparov isomorphism.
- C^*-algebraic analysis of the tempered dual from the point of view of G as a symmetric space for $G{\times}G$, and more generally of the tempered spectrum of symmetric spaces.

Preliminary list of speakers:

- Anne-Marie Aubert
- Yves Benoist
- Jacob Bradd
- Peter Hochs
- Roger Plymen
- Angel Romàn
- Maarten Solleveld
- Robert Yuncken

Organising Committee:

- Alexandre Afgoustidis
- Pierre Clare

Scientific Committee:

- Tyrone Crisp
- Claire Debord
- Toshiyuki Kobayashi
- Hang Wang

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HORAIRES

L'institut :
• lundi au vendredi de 8h30 à 18h,
• fermé les jours fériés.

Le musée - Maison Poincaré :
• lundi, mardi, jeudi et vendredi
de 9h30 à 17h30,
• samedi de 10h à 18h,
• fermé le mercredi et le dimanche.