MATH-620

Working Group on Representation Theory of Locally Compact Groups

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Cursus	Sem.	Type
Mathematics		Obl.

Language of teaching	English
Credits	1
Session	
Exam	Oral presentation
Workload	30h
Hours	**35**
Courses	7
Exercises	14
TP	14
Number of positions	

Frequency

Only this year

Remark

Next time: Fall 2019

Summary

This Working Group explores the basic representation theory of locally compact groups, especially unitary representations

Content

We will study the basics of representation theory for locally compact groups.

The most important case will be unitary representations on Hilbert spaces, but representations on various Banach spaces also arise naturally in that context, both isometric and uniformly bounded (or beyond).

The fundamental structure theory includes sums and products of representations, decompositions, direct integrals, the notions of equivalence, of irreducibility and of factiriality.

The Haar measure plays a central role in the theory and will be introduced/reviewed.

Highlights of the applications include the Peter-Weyl theorem.

The dictionary between representations of groups and modules over group algebras or measure algebras will be introduced and used. This leads naturally to the notion of C*-algebra.

Related topics are fixed point theorems and amenability; these will be covered according to the taste of the participants.

Keywords

Representation Theory, Locally Compact Groups, Unitary Representations

Learning Prerequisites

Recommended courses

The participants must have basic knowledge of Topology and Functional Analysis

Learning Outcomes

By the end of the course, the student must be able to:

- Understand the concepts Introduced and explain them