AM03

Operator Algebras and Applications

Álgebras de Operadores y Aplicaciones

Organizers **Organizadores** **Antolatzaileak**

Jorge Pérez García
(CSIC)

Jesse Reimann
(TU Delft)

Description **Descripción** **Deskribapena**

A transversal session covering some of the state-of-the-art topics related to operator algebras and their applications

Esta es una sesión transversal que cubrirá varios temas de actualidad relacionados con las álgebras de operadores y sus aplicaciones

MSC Codes **Códigos MSC** **MSC Kodeak**

46L05
(primary)

81R15; 47B49; 46L52
(secondary)

Slots **Bloques** **Blokeak**

2.A (Aula 0.12)

QR Code **Código QR** **QR Kodea**

Session Schedule **Horario de la Sesión** **Saioaren Ordutegia**

J16 | 11:00-11:20 | 0.12
Modular theory in Algebriac Quantum Field Theory: Half-sided Modular Inclusions, Standard Pairs and beyond
Ian Koot (Friedrich-Alexander-Universität Erlangen-Nürnberg)

J16 | 11:30-11:50 | 0.12
Lie-Trotter formulae in Jordan-Banach algebras with applications to the study of spectral-valued multiplicative functionals
Gerardo Martín Escolano (University of Granada & IMAG)

J16 | 12:00-12:20 | 0.12
Non-commutative L^p-spaces: tracial and Haagerup constructions
Cristian Castillo Godoy (Universidad de Alicante)

J16 | 12:30-12:50 | 0.12
Schur multipliers, Fourier multipliers, and the transference method
Jesse Reimann (TU Delft)

Thursday 16	**Jueves 16**	**Osteguna 16**
11:00-11:20	**11:00-11:20**	**11:00-11:20**
[Room 0.12]	**[Aula 0.12]**	**[Gela 0.12]**

Modular theory in Algebriac Quantum Field Theory: Half-sided Modular Inclusions, Standard Pairs and beyond

Ian Koot
(Friedrich-Alexander-Universität Erlangen-Nürnberg)

In Algebraic Quantum Field Theory, the Tomita-Takesaki Modular Theory of the operator algebras making up the theory is related to thermal states. Although the modular theory is difficult to calculate for general theories, we discuss situations where geometric inclusions imply a simple modular theory. Specifically, we look at Half-Sided Modular Inclusions and a possible generalization.

Joint work with Gandalf Lechner.

Thursday 16	**Jueves 16**	**Osteguna 16**
11:30-11:50	**11:30-11:50**	**11:30-11:50**
[Room 0.12]	**[Aula 0.12]**	**[Gela 0.12]**

Lie-Trotter formulae in Jordan-Banach algebras with applications to the study of spectral-valued multiplicative functionals

Gerardo Martín Escolano
(University of Granada & IMAG)

We establish some Lie-Trotter formulae for unital complex Jordan-Banach algebras. These formulae are employed in the study of spectral-valued (non-necessarily linear) functionals. We prove that for any such a functional f, there exists a unique continuous (Jordan-)multiplicative linear functional ψ such that $f(x) = \psi(x)$, for every x in the principal component. If we additionally assume that A is a JB -algebra and f is continuous, then f is a linear multiplicative functional.

Joint work with A. M. Peralta and A. R. Villena.

arXiv:2305.05530

Thursday 16	**Jueves 16**	**Osteguna 16**
12:00-12:20	**12:00-12:20**	**12:00-12:20**
[Room 0.12]	**[Aula 0.12]**	**[Gela 0.12]**

Non-commutative L^p-spaces: tracial and Haagerup constructions

Cristian Castillo Godoy
(Universidad de Alicante)

If a von Neumann algebra $\mathcal{M}$ is semifinite, then it admits a trace τ that can be used to define the p-norm of certain operators. The L^p-space associated with $\mathcal{M}$ and τ is the completion of the space of such operators with this norm. In 1977, U. Haagerup gave a construction of L^p-spaces associated with an arbitrary von Neumann algebra. In this talk, we introduce both constructions of L^p-spaces of operators, along with their main properties and differences.

Thursday 16	**Jueves 16**	**Osteguna 16**
12:30-12:50	**12:30-12:50**	**12:30-12:50**
[Room 0.12]	**[Aula 0.12]**	**[Gela 0.12]**

Schur multipliers, Fourier multipliers, and the transference method

Jesse Reimann
(TU Delft)

Schur multipliers, which can be seen as a generalisation of componentwise matrix multiplication, have found applications in mathematical physics through noncommutative geometry; however, their boundedness is difficult to show directly. In this talk, I will introduce the so-called transference method, which allows us to study Schur multipliers through associated Fourier multipliers. If time permits, I will present some recent progress in the study of Schur multipliers.

Joint work with Martijn Caspers.

arXiv:2405.00464