

SEMINAR

Grupo de Análise Funcional e Aplicações Functional Analysis and Applications Group

Fredholm property of Wiener-Hopf and Mellin type operators with piecewise and slowly oscillating symbols

Helena Mascarenhas

Instituto Superior Técnico, Universidade de Lisboa

Abstract

We study the Fredholm property of operators, from a Banach algebra \mathcal{D} , acting on weighted Lebesgue spaces over \mathbb{R}^+ with power weights and $1 < p < \infty$. The algebra \mathcal{D} , is the Banach algebra generated by multiplication operators, Wiener-Hopf operators and Mellin convolution operators with piecewise slowly oscillating symbols. We show that the analogous algebra with slowly oscillating symbols is a central subalgebra of the Calkin algebra \mathcal{D}^π and we describe its maximal ideal space. Using Allan-Douglas principle and limit operators techniques adapted to slowly oscillating data, we fully describe the local algebras. This provides a Fredholm criteria for operators in \mathcal{D} in terms of the invertibility of a set of simpler operators indexed in the maximal ideal space. This talk is based on joint works with Amélia Bastos and Yuri Karlovich.

Room Sousa Pinto
May 22, 2026 - 15:00

This seminar is supported in part by CIDMA (<https://ror.org/05pm2mw36>) under the Portuguese Foundation for Science and Technology (FCT, <https://ror.org/00snfq58>), Grants UID/04106/2025 (<https://doi.org/10.54499/UID/04106/2025>) and UID/PRR/04106/2025 (<https://doi.org/10.54499/UID/PRR/04106/2025>).