DMat
Universidade de Aveiro

CIDMA
CENTRO DE I&D EM MATEMÁTICA E APLICAÇÕES
CENTER FOR R&D IN MATHEMATICS AND APPLICATIONS

WEBINAR

Grupo de Análise Funcional e Aplicações
Functional Analysis and Applications Group

Sign uncertainty principles: old and new

Diogo Oliveira e Silva
School of Mathematics, University of Birmingham, UK

Abstract

Ten years ago, Bourgain, Clozel & Kahane established a surprising "sign uncertainty principle" (SUP), asserting that if a function and its Fourier transform are nonpositive at the origin and not identically zero, then they cannot both be nonnegative outside an arbitrarily small neighbourhood of the origin. In 2017, Gonçalves & Cohn solved the 12-dimensional SUP via connections to the sphere packing problem, and discovered a complementary SUP. This talk will focus on some new sign uncertainty principles which generalise the developments of Bourgain, Clozel & Kahane and Cohn & Gonçalves. In particular, we will discuss SUPs for Fourier series, the Hilbert transform, spherical harmonics, and Jacobi polynomials. As a by-product, we determine some sharp instances of the spherical SUP via connections to tight spherical designs. Time permitting, we will outline a possible path towards the sharp 1-dimensional SUP. This talk is based on joint work with Felipe Gonçalves and João Pedro Ramos.

March 31, 2021 - 16:30

https://videoconf-colibri.zoom.us/j/83397834728
ID da reunião: 833 9783 4728
Senha de acesso: 845796

This seminar is supported in part by the Portuguese Foundation for Science and Technology (FCT - Fundação para a Ciência e a Tecnologia), through CIDMA - Center for Research and Development in Mathematics and Applications, within project UIDB/04106/2020.

FCT Fundação para a Ciência e a Tecnologia

REPÚBLICA PORTUGUESA