Advances in PDE and Harmonic Analysis

A conference in honour of Jorge Hounie

Program and book of abstracts

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January 9 – 11, 2023
São Carlos, SP, Brazil

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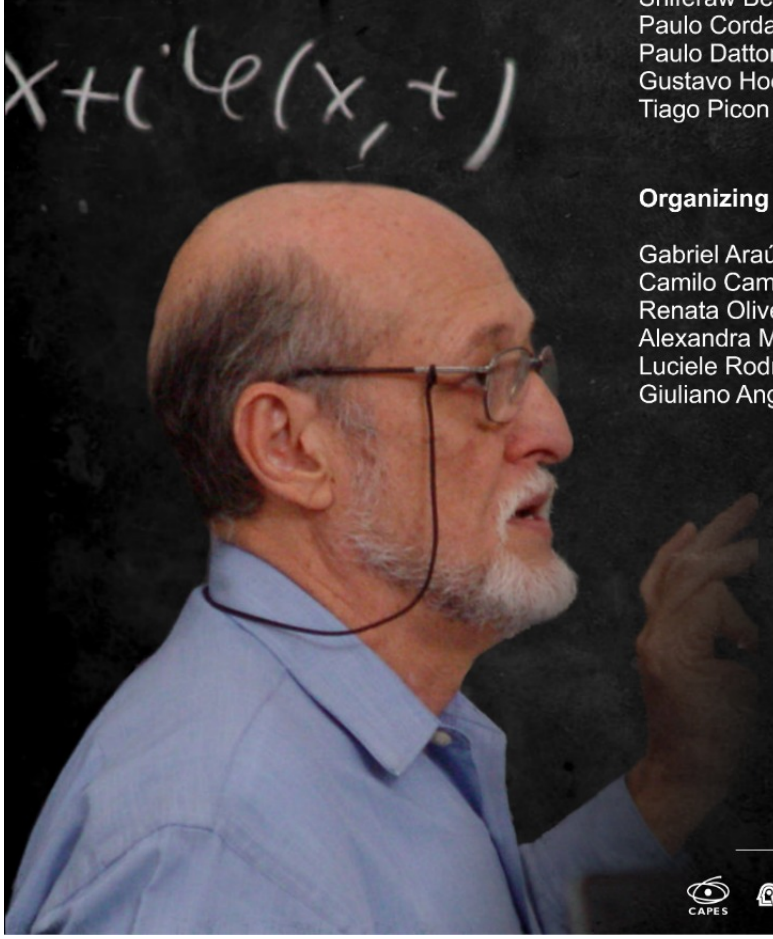
Advances in PDE and Harmonic Analysis

A conference in honour of ***Jorge Hounie***
on the occasion of his 75th birthday

January 09 - 11, 2023



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Joel Coacalle (USP)

Title: Subelliptic Estimates for the Complex Green Operator on non pseudoconvex CR manifolds of hypersurface type

Abstract: In this work we obtain subelliptic estimates for the complex Green operator K_q at some fixed level of $(0,q)$-forms of the $\bar{\partial}_b$-complex associated to a non pseudoconvex CR manifolds of hypersurface type M. The nonpseudoconvex CR manifolds we consider are the weak $Y(q)$ manifolds, and there we assume a finite commutator type property. We introduce a condition that compares sum of q eigenvalues of the Levi matrix, weaker than the well known $D(q)$ condition, adapted to weak $Y(q)$ case. We show that these two conditions, finite type and the eigenvalue sum comparison conditions are sufficient to show subelliptic estimates for K_q at some specific level of $(0,q)$-forms using a microlocal argument.

Stefan Fürdös (USP)

Title: Ellipticity and the problem of iterates in ultradifferentiable classes

Abstract: In 1978 Métivier showed that a differential operator P with analytic coefficients is elliptic if and only if the theorem of iterates holds for P with respect to any non-analytic Gevrey class. We extend this theorem to Denjoy-Carleman classes given by strongly non-quasianalytic weight sequences. Moreover, we point out that the analogous statement for Braun-Meise-Taylor classes given by weight functions cannot hold. This signifies an important difference in the properties of Denjoy-Carleman classes and Braun-Meise-Taylor classes, respectively.

This is joint work with Gerhard Schindl from the University of Vienna.

Renan Dantas Medrado (UFAL)

Title: An extended class of FBI transform with applications to ultradifferential regularity

Abstract: We introduce a class of FBI transforms using weight functions (which includes the class of FBI transformations used by M. Christ in the Gevrey regularity study) that is well suited when dealing with ultradifferentiable functions and ultradistributions defined by weight functions in the sense of Braun, Meise and Taylor (BMT). We show how to characterize local regularity of BMT ultradistributions using this wider class of FBI transform and, as an application, we characterize the BMT vectors and prove a relation between BMT local regularity and BMT vectors.