Advances in PDE and Harmonic Analysis
A conference in honour of Jorge Hounie

Program and book of abstracts

For up-to-date info, check:
https://www.dm.ufscar.br/eventos/apdeha2023/

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

Speakers

- Josefina Álvarez – New Mexico State University, USA

- Shiferaw Berhanu – University of Maryland, USA

- Paulo Cordaro – University of São Paulo, Brazil

- Galia Dafni – Concordia University, Canada

- Gustavo Hoepfner – Federal University of São Carlos, Brazil

- Ilya Kossovskiy – Masaryk University, Czech Republic

- Nicolas Lerner – Sorbonne Université, France

- Gerardo Mendoza – Temple University, USA

- Mario Milman – Instituto Argentino de Matemática, Argentina

- Tiago Picon – University of São Paulo, Brazil

- Evandro Raimundo da Silva – University of São Paulo, Brazil

- François Treves – Rutgers University, USA

- Giuliano Zugliani – State University of Campinas, Brazil

Organization

Scientific committee

- Shiferaw Berhanu – University of Maryland, USA

- Paulo Cordaro – University of São Paulo, Brazil

- Paulo Dattori da Silva – University of São Paulo, Brazil

- Gustavo Hoepfner – Federal University of São Carlos, Brazil

- Tiago Picon – University of São Paulo, Brazil

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- Luciele Rodrigues Nunes – Federal University of Rio Grande, Brazil

- Giuliano Zugliani – State University of Campinas, Brazil

Gerardo Mendoza

TITLE: LORENTZ METRICS WITH SINGULARITIES

Abstract: I'll discuss a class of Lorentz metrics on manifolds with boundary that are singular on the boundary. The light cone of these metrics collapses to a line bundle over the boundary, while making the latter be space-like with total volume 0. I'll present necessary conditions for the existence of such metrics on a compact manifold, and describe some interesting properties of the bicharacteristic flow of their D'Alembertian. For these I'll pose a Cauchy problem and, time permitting, describe the Fourier Integral Operator associated as solution operator near the boundary. This is joint work with Zachary Hanson-Hart.

Mario Milman

TITLE: YUDOVICH AND VISHIK THEORIES REVISITED: EXTRAPOLATION METHODS

Abstract: We revisit the classical methods developed by Yudovich and Vishik to establish uniqueness of solutions for the 2D Euler equations for an inviscid incompressible fluid on $\mathbb{T}$ or $\mathbb{R}^2$. We show that extrapolation theory provides a framework that unifies both approaches and allows for meaningful extensions out of the reach of the classical results.

Joint work with Oscar Dominguez (Universidad Complutense de Madrid).

Tiago Picon

TITLE: L^∞ SOLVABILITY OF ELLIPTIC AND CANCELING HOMOGENEOUS LINEAR EQUATIONS ON MEASURES

Abstract: In this talk, we present new results on L^∞ solvability of the equation $A^*(D)f = \mu$, where $A(D)$ is an elliptic and canceling homogeneous differential operator and μ is a nonnegative measure. Our method is based on type L^1 estimates on measures for a special class of vector fields.

This is joint work with Victor Biliatto (UFSCar).

Evandro Raimundo da Silva

TITLE: LOCAL SOLVABILITY FOR A CLASS OF LINEAR OPERATORS IN BESOV AND TRIEBEL-LIZORKIN SPACES

Abstract: We show local solvability in Besov and Triebel-Lizorkin spaces for a class of first order linear operators L defined on an open set of $\mathbb{R}^{n+1}$, $n \in \mathbb{N}$, satisfying the condition (P) of Nirenberg-Treves and whose coefficients are Hölder continuous.