

2020
chapter

ICMC SUMMER MEETING ON DIFFERENTIAL EQUATIONS

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Celebrating the **60th**
birthday of

TOMÁS CARABALLO

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LIST OF SESSIONS

Elliptic Equations
Fluid Equations
Linear Equations
Evolution Equations and Applications
Integral and Functional Differential Equations
Boundary Perturbations of Domains for PDEs and Applications
Nonlinear Dynamical Systems
Dispersive Equations
Conservation Laws and Transport Equations
Poster Session



The FBI transform on hypo-analytic structures and Gevrey regularity

Nicholas Braun Rodrigues
Universidade de São Paulo

The FBI transform is widely used to study the regularity of solutions of PDE's. In 1983 Baouendi, Chang and Treves proposed an FBI adapted to a hypo-analytic structure, and with it, they characterized the so-called hypo-analytic functions, for instance, CR-functions. An important application of this characterization is that hypo-analytic singularities propagate along elliptic submanifolds, which was proved in 1983 by F. Treves and N. Hanges. The aim of this talk is to show that the FBI presented in Baouendi-Chang-Treves' paper also characterizes the Gevrey (or hypo-Gevrey) functions.

Continuity of pseudo-differential operators with Banach space valued symbols

Pedro T P Lopes, Tiago H. Picon
Universidade de São Paulo

It is known that several results and concepts of harmonic analysis (Fourier multipliers, maximal functions and so on) can be extended to functions with values in Banach spaces. In particular, versions of the Miklhin Theorem can be proved. Theorems in this direction can be applied to evolution equations, where they allow to obtain regularity results.

It is also possible to study pseudo-differential operators with Banach space valued symbols, targeting the same kind of applications. Here we present some results that can be found in the literature and we show some directions that can be taken, in particular some of our own results and challenges. (Partially supported by FAPESP. Processo número 2019/15200-1).

Global solvability for perturbations of real vector fields on the torus

Rafael Borro Gonzalez
UEL

We show that a perturbation of zero order may change the global solvability (closed range) of certain real vector fields on the torus. The results produce a contrast to the local and semiglobal aspect of solvability.

A characterization of ultradifferentiable functions via a class of FBI transforms

Renan Dantas Medrado, Gustavo Hoepfner
Universidade Federal de Alagoas

We present a class of FBI transforms (including the class of FBI transforms presented by M. Christ in 1997) using weight functions. We use this class of transforms to characterize Braun, Meise and Taylor (BMT) locally regularity of ultradistributions. We also characterize the BMT vectors in terms of the FBI transform and prove a BMT version of the Kotake-Narasimhan Theorem.