Universidade Federal de Santa Catarina
Centro de Ciências Físicas e Matemáticas
Pós-Graduação em Matemática

Seminars on Differential Equations (2018.2)

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A one million dollars problem from the point of view of continuation of solutions

Abstract

In this work we consider the Navier-Stokes problem in $\mathbb{R}^N$:

$$
\begin{aligned}
&u_t = \Delta u - \nabla \pi + f(t) - (u \cdot \nabla)u, \quad x \in \Omega \\
&\operatorname{div}(u) = 0, \quad x \in \Omega \\
&u = 0, \quad x \in \partial\Omega \\
&u(0,x) = u_0(x),
\end{aligned}
$$

where $u_0 \in L^N(\Omega)^N$ and Ω is a bounded open subset of $\mathbb{R}^N$ with smooth boundary. We prove that this problem is locally well posed and provide conditions to show that these solutions are defined for all $t \geq 0$. We offer an interpretation for the problem of the Clay Mathematics Institute concerning the Navier-Stokes equations.

Thursay - October 18th, 2018 **14:00 - 15:00**

Room 202 - Maths Department

UFSC - Florianópolis

Check out our website: `http://mtm.ufsc.br/~bortolan/seminario/index1.html`