# Gevrey solvability of a class of first order differential operators on the torus

Paulo L. Dattori da Silva

*dattori@icmc.usp.br*

University of Sao Paulo at Sao Carlos - ICMC

## Abstract

In this talk we will deal with Gevrey global solvability on the $N$-dimensional torus ($\mathbb{T}^N \simeq \mathbb{R}^N/2\pi\mathbb{Z}^N$) to a class of nonlinear first order partial differential equations in the form $Lu - au - b\overline{u} = f$, where $a$, $b$, and $f$ are Gevrey functions in $\mathbb{T}^N$ and $L$ is a complex vector field defined on $\mathbb{T}^N$. Diophantine properties of the coefficients of $L$ appear in a natural way in our results. Also, we present results in $C^\infty$ context.

This is a joint work with Marcelo F. de Almeida (Federal University of Sergipe).

## References

[1] A. P. Bergamasco, P. L. Dattori da Silva, and A. Meziani, *Solvability of a first order differential operator on the two-torus*, J. Math. Anal. Appl. 416 (2014), no. 1, 166–180.

[2] M. F. de Almeida and P. L. Dattori da Silva, *Solvability of a class of first order differential operators on the torus*, preprint.