



**Centro de Investigação em Matemática e Aplicações
Programa de Doutoramento em Matemática
Departamento de Matemática**

Seminário

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Numerical Solution of the Two-dimensional Neural Field Equations

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Abstract

Modelling the neuronal activity in the cerebral cortex is a very challenging task, which has nowadays multiple applications not only in Medicine (interpretation of data, such as EEG, fMRI and optical imaging) but also in Robotics.

One of the most promising approaches in this domain are the so called Neural Field Equations (NFE), where a certain region of the cortex is considered as a continuous field of neurons with certain electrical properties. In this case an integro-differential equation is obtained, which describes excitatory and inhibitory interactions in populations of neurons.

We describe a numerical method recently introduced to approximate the solution of the considered equation. The accuracy and efficiency of the method are discussed and some numerical examples are presented which illustrate its performance.

This talk is based in a joint work with E. Buckwar, from the University of Linz.

Apoio:



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