

Mês de: MARÇO 2014

**SEMINÁRIO DE ANÁLISE E EQUAÇÕES
DIFERENCIAIS**

Dia 13 de Março (quinta-feira), às 13:30h, na Sala B3-01

Finite elements on evolving surfaces and some applications

Raquel Barreira

(Escola Superior de Tecnologia do Barreiro, Instituto Politécnico de Setúbal)

Abstract:

The Evolving Surface Finite Element Method (ESFEM) will be presented. This is a numerical method developed by Dziuk and Elliott [1] to solve a class of non-linear partial differential equations on surfaces, that may evolve in time. The key idea is based on the approximation of the surface by a triangulated surface consisting of a union of triangles with vertices on the original surface. The ESFEM has shown efficiency and great flexibility when it comes to the equation it can approximate and the surfaces it can handle. We will show some applications: segmentation of images painted on surfaces, pattern formation (Turing patterns) on growing surfaces and growth of solid tumours for which the surface of the tumour deforms according to the concentration of a chemical that promotes growth.

References

- [1] G. Dziuk and C.M. Elliott. Finite elements on evolving surfaces. *IMA Journal of Numerical Analysis*, 27:262–292, 2007.

Apoio:



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Local:

INSTITUTO PARA A INVESTIGAÇÃO INTERDISCIPLINAR
Av. Prof. Gama Pinto, 2
1649-003 Lisboa

