



MINI CURSO

Métodos Matemáticos da Mecânica

Sanda Tigoiu (Faculty of Mathematics and Informatics, University of Bucharest)

"Finite elasto-plasticity with structural inhomogeneities. Theory and applications"

Contents:

- 1. Fundamental concepts in Continuum Mechanics, related to finite elasto-plasticity.
- 2. Constitutive assumptions in multiplicative finite elasto-plasticity, based on the current relaxed configurations: elastic type constitutive relation and evolution equations for plastic deformation and internal variables
- 3. Material symmetry in finite elasticity and in finite elasto-plasticity. Application to orthotropic and transversely isotropic materials.
- 4. Rate type boundary value problems. Applications to bifurcations of homogeneous deformations in crystal plasticity.
- 5. Second order type finite-plasticity: elastic and plastic distortion and connection. Theorem for the representation of connections.
- 6. Mathematical models for defects existing at the micro-structural level, geometric description and balance equation for associated micro-forces.
- 7. Non-local models for elasto-plastic materials with dislocations.

Applications.

The lectures include proposed exercises and problems, and detailed notes are annexed to give certain detailed explanations which are necessary for a better understanding of the exposures.

There will be four lectures which will be held in ROOM B2-01, on :

Wednesday 18 May from 14:30 to 16:00

Thursday 19 May from 14:30 to 16:00

Wednesday 25 May from 14:30 to 16:00

Thursday 26 May from 14:30 to 16:00

Local:

Instituto para a Investigação Interdisciplinar

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