



UNIVERSITÀ DEGLI STUDI
DI TRENTO

Dipartimento di Ingegneria Civile,
Ambientale e Meccanica



Instabilities and nonlocal
multiscale modelling of
materials

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AVVISO DI SEMINARIO

Si comunica che **lunedì 29 gennaio 2018 a partire dalle ore 11.00**
si terrà presso l'aula **R2** (via Mesiano 77) il seguente seminario

Modeling transport-reaction-mechanics with trapping.

Prof. Alberto Salvadori

Università degli Studi di Brescia

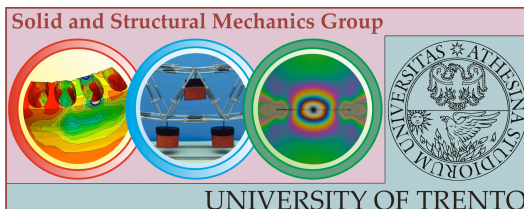
A fully coupled model for mass and heat transport, mechanics, and chemical reactions with trapping is proposed. It is rooted in non-equilibrium rational thermodynamics and assumes that displacements and strains are small. Balance laws for mass, linear and angular momentum, energy, and entropy are stated. Thermodynamic restrictions are identified, based on an additive strain decomposition and on the definition of the Helmholtz free energy. Constitutive theory and chemical kinetics are studied in order to finally write the governing equations for the multi-physics problem. The field equations are solved numerically with the finite element method, stemming from a three-fields variational formulation.

Case-studies on vacancies redistribution in metals, hydrogen embrittlement, the charge-discharge of active particles in Li-ion batteries, and VEGFR redistribution on human cells demonstrate the features and the potential of the proposed model.

Tutti gli interessati sono invitati a partecipare.

Il seminario è organizzato dal gruppo di Scienza delle Costruzioni

(D. Bigoni, L. Deseri, N. Pugno, A. Piccolroaz, F. Dal Corso, M.F. Pantano, R. Springhetti, D. Misseroni)



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