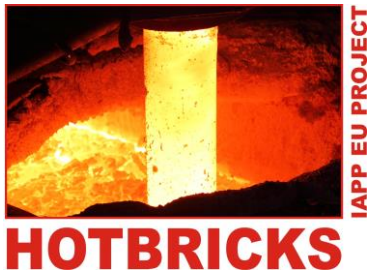




UNIVERSITÀ DEGLI STUDI
DI TRENTO

Dipartimento di Ingegneria Civile,
Ambientale e Meccanica



Mechanics of refractory
materials at high-temperature
for advanced industrial
technologies
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AVVISO DI CORSO

Si comunica che **mercoledì 18 giugno alle ore 17.00**
si terrà presso l'aula **R2** (via Mesiano 77) il seguente corso

Experimental evidence of electro-thermo-elastic coupling in quasi-brittle materials for energy applications

Prof. Marco Paggi

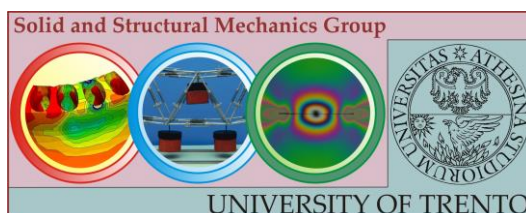
IMT Institute for Advanced Studies Lucca

In the present talk, an overview of the results related to the experimental testing carried out in the framework of the ERC Starting Grant CA2PVM "Multi-field and multi-scale Computational Approach to design and durability of Photovoltaic Modules" for the study of the evolution of cracking and damage in photovoltaic modules is proposed. These multilayered composites are based on Silicon, a quasi-brittle material, embedded in an epoxy thermo-viscoelastic layer. Using the electroluminescence technique to monitor cracking during cyclic loading, phenomena impossible for stand-alone Silicon are shown: (i) recovery of the electric conductivity due to compressive residual thermo-elastic stresses; (ii) crack closure effects; (iii) fatigue degradation with the occurrence of crack branching and strain localization in the Silicon cells.

These results highlight the need of developing new coupled fracture mechanics models in multi-physics and pinpoint the complexity in the behaviour of composites for energy applications whose global response is the result of the intimate interaction between their constituents.

Tutti gli interessati sono invitati a partecipare.

Il seminario è organizzato dal gruppo di Scienza delle Costruzioni
(D. Bigoni, L. Deseri, N. Pugno, M. Gei, F. Dal Corso, A. Piccolroaz, R. Springhetti)



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