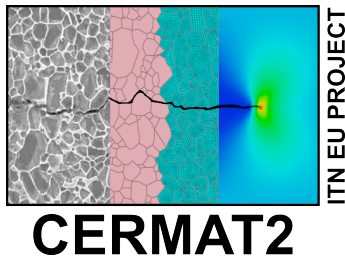




UNIVERSITÀ DEGLI STUDI  
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## AVVISO DI CORSO

Si comunica che **mercoledì 16 marzo alle ore 15.00**  
si terrà presso l'aula **P1** (via Mesiano 77) il seguente corso

### **Durability of photovoltaics modules: physical modeling, experimental testing and novel simulation methods**

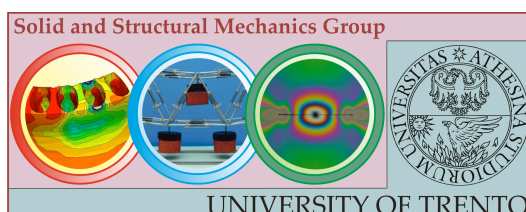
**Prof. Marco Paggi**

*IMT Institute for Advanced Studies Lucca*

Photovoltaics (PV) is one of the most growing technologies in the World for renewable, sustainable, nonpolluting, widely available clean energy sources. To make it further sustainable and durable, unconventional simulation tools and experimental methods are required to effectively characterize and optimize the performance of PV systems subject to mechanical and environmental loadings. This is the main focus of the IDEAS Starting Grant "Multi-field and multi-scale Computational Approach to design and durability of PhotoVoltaic Modules" (CA2PVM) supported by the European Research Council. The present lecture will present relevant project results regarding the development of a novel multi-physics computational tool integrating: (i) advanced structural mechanics models to compute the stress and deformation fields in PV laminates; (ii) geometrical multi-scale numerical schemes to solve thermal and moisture diffusion problems; (iii) nonlinear fracture mechanics formulations to simulate crack propagation in the solar cells; (iv) electric models to quantify the electric output of the device, also in the presence of Silicon cracks. Both traditional technologies based on mono- and polycrystalline silicon semiconductors and innovative semi-flexible PV modules are targeted. The insight gained from the application of the proposed computational methods is validated in relation to selected experimental tests.

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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