



Seminar Systemdynamik und Reibungsphysik Vortragsankündigung

Im Rahmen des Seminars für Systemdynamik und Reibungsphysik spricht

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zum Thema

Mechanical challenges in the durability of photovoltaic modules

Zeit: Di 17.12.2013, 14:15 – 15:30 Uhr **Ort:** Raum M 123 (Gebäude M)

Abstract:

The problem of cracking in Silicon solar cells is an important concern for the durability of photovoltaic modules. In the present seminar, experimental evidence of cracking induced by mechanical and thermal loads is provided by using advanced non destructive techniques. Based on this evidence, an innovative multi-scale and multi-physics computational framework coupling the elastic field, the thermal field and the electric field is illustrated. Numerical applications to real case studies show the great potentiality of the method and open new directions of research in the multidisciplinary field of renewable energy and mechanics.

The research leading to these results has received funding from the European Research Council under the European Union's Seventh Framework Programme (FP/2007-2013) / ERC Grant Agreement n. 306622 (ERC Starting Grant Multi-field and multi-scale Computational Approach to Design and Durability of PhotoVoltaic Modules - CA2PVM). The support of the Italian Ministry of Education, University and Research to the project FIRB 2010 Future in Research Structural mechanics models for renewable energy applications (RBFR107AKG) is also gratefully acknowledged.

Selected references

- Sapora, M. Paggi (2013) A coupled cohesive zone model for transient analysis of thermoelastic interface debonding, *Computational Mechanics*, in press. doi:10.1007/s00466-013-0934-8
- M. Paggi, M. Corrado, M.A. Rodriguez (2013) A multi-physics and multi-scale numerical approach to microcracking and power-loss in photovoltaic modules, *Composite Structures*, 95:630-638.
- M. Paggi, P. Wriggers (2012) Stiffness and strength of hierarchical polycrystalline materials with imperfect interfaces, *Journal of the Mechanics and Physics of Solids*, 60:557-572.