



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 **venerdì 24 ottobre 2014 a partire dalle ore 11.30**  
si terrà presso l'aula **Q2** (via Mesiano 77) il seguente seminario

### Ziegler-Bottema dissipation-induced instability and related topics

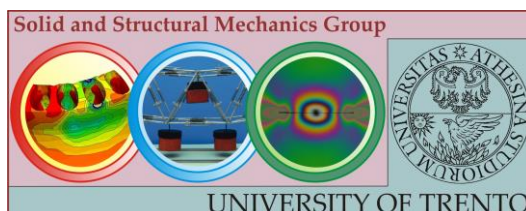
**Dr. Oleg Kirillov**

*Helmholtz-Zentrum Dresden-Rossendorf*

In 1952 Hans Ziegler of ETH Zurich discovered that even an infinitesimally small viscous damping can: (i) destabilize a marginally stable ideal elastic system under the action of a follower force and (ii) diminish by a final amount the instability threshold calculated for the ideal system. The first phenomenon is known as a dissipation-induced instability and the second - as the destabilization paradox. The paradox attracted attention of such researchers as Oene Bottema, Vladimir Bolotin, George Hermann and many others. Its resolution requires a combination of singularity theory, perturbation theory of multiple eigenvalues of non-self-adjoint operators, and theory of Hamiltonian and reversible systems. The two phenomena are universal and take place in both solid and fluid mechanics. I will discuss both the general results and applications with historical remarks.

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, A. Piccolroaz, F. Dal Corso, M.F. Pantano, R. Springhetti)



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