AVVISO DI SEMINARIO

Si comunica che **venerdì 01 luglio 2016 a partire dalle ore 11.00**
si terrà presso l'aula **R2** (via Mesiano 77) il seguente seminario

Efficient Solution Methods for Non-linear and Coupled Problems in Mechanics

Prof. Rolf Krause
USI - Università della Svizzera italiana

The numerical solution of large scale problems in computational mechanics poses several difficulties: non-linear effects arising from the material law or from large deformations have to be covered as well as boundary effects arising from contact
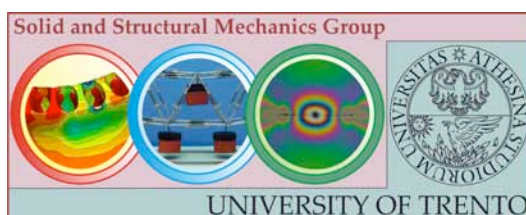or friction. As a consequence, standard forward approaches such as, e.g., Newton's method, will run into difficulties. We will present alternative approaches which are based on inherently non-linear multigrid and domain decomposition method.
In contrast to standard non-linear strategies, where a large-scale linear system arises from global linearization, our approach is based on a decomposition of the original non-linear problem into several non-linear sub-problems. These problems are solved independently in parallel, leading to a new class of non-linear solution methods. Using the elastic energy as control for the resulting iteration procedure, we can show global convergence to stationary points, thus ensuring the robustness of our approach.
We will furthermore comment on the efficient solution of coupled problems, such as fluid-structure interaction or electro-mechanical coupling in cardiac simulation. Numerical examples from contact mechanics and from cardiac simulation will illustrate the properties of our approach.

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)