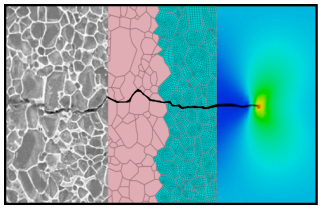
UNIVERSITÀ DEGLI STUDI
DI TRENTO
Dipartimento di Ingegneria Civile,
Ambientale e Meccanica



ITN EU PROJECT

CERMAT2

New ceramic technologies and novel multifunctional ceramic devices and structures
http://www.ing.unitn.it/dims/cermat2/index.php

MARIE CURIE ACTIONS
PEOPLE

AVVISO DI CORSO

Si comunica che **venerdì 07 agosto alle ore 11.00**
si terrà presso l'aula **Q2** (via Mesiano 77) il seguente corso

Pullout of synthetic fibres treated with nano-silica from a cement matrix

Prof. Enrico radi

Università di Modena e Reggio Emilia

An accurate one-dimensional analytical model for simulating the pullout process of synthetic fibres from a cement matrix is proposed in the present study. The fiber has been treated with nano-silica on its surface in order to increase the bonding strength with the cementitious matrix. Such a treatment improves the post-cracking behavior of concrete thus providing ductile behavior to Fibre Reinforced Concrete (FRC) members. The proposed model is able to predict the non linear relation between the applied tensile load and the fibre displacement observed in pullout tests and it is particularly suitable for synthetic fibres that may exhibit large axial elongation and slip-hardening interface behavior. Indeed, the balance conditions between the axial load and the shear stress arising on the fibre surface in frictional contact with the matrix are imposed on the deformed configuration. The frictional bond strength is assumed to increase with slippage distance as a consequence of the increasing abrasion of the fibre surface occurring for polymeric fibres that have been subjected to surface treatments. The model is also suitable for metallic fibres if constant friction or slip-softening interface behavior is assumed instead. The results provided by the proposed model are validated by comparison with the experimanrtal results obtained from pullout tests performed on both treated and untreated fibres. After setting the constitutive parameters, the model proves to be able to predict the experimental curves accurately.

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)

Solid and Structural Mechanics Group
UNIVERSITY OF TRENTO

SOLID AND STRUCTURAL MECHANICS GROUP
ssmg.unitn.it