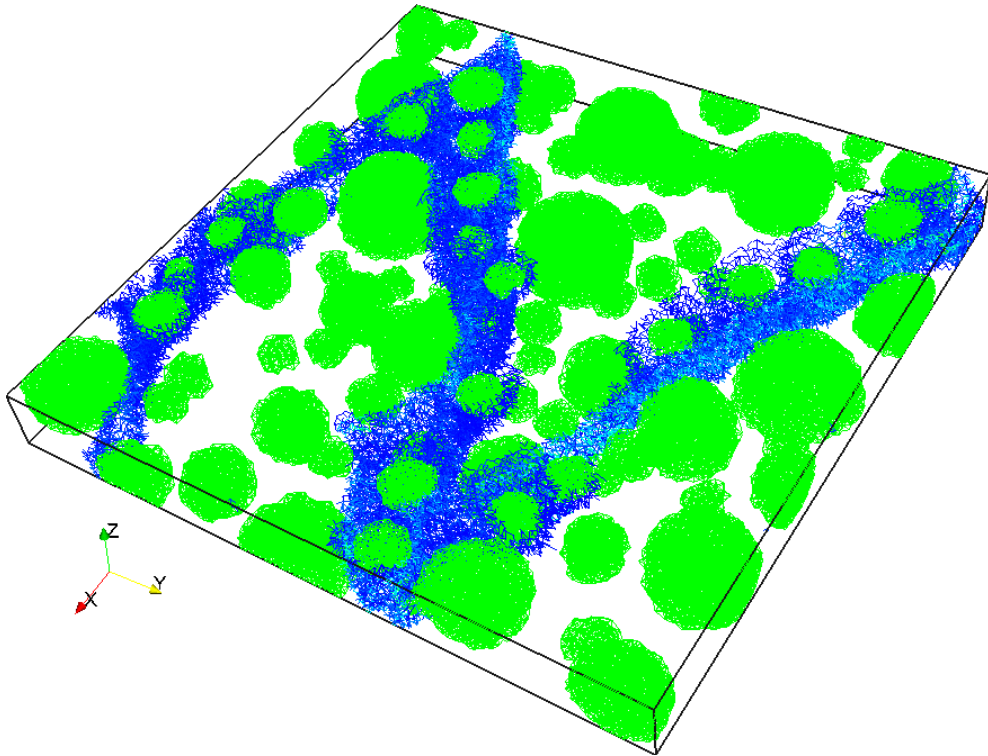# MULTI-SCALE ANALYSIS, IDENTIFICATION AND DESIGN OF INELASTIC HETEROGENEOUS MATERIALS

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**Přednáška v rámci semináře katedry mechaniky
v pondělí 20. dubna 2009 od 9.30 hodin v B 169**

The current increase in computational power allows us to completely rethink the modeling of engineering materials and the corresponding testing procedure. In particular, the traditional phenomenological models are more and more giving way to multi-scale modeling procedures, where one goes down to much smaller scales in order to be able to properly interpret the particular mechanisms of inelastic behavior. One such model, which is built upon the ideas inherited from structural mechanics, is presented in this lecture. The predictive capabilities of this model are illustrated for a couple of challenging problems of dynamic fracture and crack propagation, as well as for reproducing the size effect for structural failure. Related topics pertinent to problems of material design and testing are also briefly addressed. Several examples are presented in order to illustrate the advantages of such an approach.

*Přednáška **v angličtině** se koná v pondělí 20.4.2009 od 9.30 ve velké zasedací síni děkana (místnost B 169) v budově Stavební fakulty ČVUT v Praze, Thákurova 7, Dejvice. **Všichni zájemci jsou srdečně zváni.***

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