



ΕΛΛΗΝΙΚΗ
ΕΠΙΣΤΗΜΟΝΙΚΗ
ΕΤΑΙΡΕΙΑ
ΕΔΑΦΟΜΗΧΑΝΙΚΗΣ
& ΓΕΩΤΕΧΝΙΚΗΣ
ΜΗΧΑΝΙΚΗΣ

ΔΙΑΛΕΞΗ

την Τετάρτη, 12 Ιουνίου 2013, ώρα 12:00

στην

στην Αίθουσα Εκδηλώσεων της Σχολής Πολιτικών Μηχανικών
στην Πολυτεχνειούπολη Ζωγράφου

«On Numerical Modeling and Simulation of Earthquake Soil Structure Interaction»

από τον

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και

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ΠΕΡΙΛΗΨΗ ΔΙΑΛΕΞΗΣ

Presented will be an overview of numerical modeling and simulation of earthquake soil structure interaction (ESSI) endeavor within the Computational Geomechanics group at University of California at Davis (CompGeoMechUCD). Talk will be motivated by the existence of significant uncertainties (modeling, material, loads) that are present in numerical prediction efforts for ESSI systems. Essential components of a potentially successful modeling and simulation system might prove to be a reliance on rational mechanics, sound software engineering and a significant educational effort.

Earthquake Soil Structure Interaction modeling and simulation system ESSI Simulator, developed by CompGeoMechUCD group, aims to achieve high fidelity modeling and simulation of ESSI systems. The ESSI Simulator system is based on (in the house developed) nonlinear parallel finite element methods. algorithms and procedures. Presentation will describe in some detail ESSI Simulator system components. Few illustrative examples will be used to illustrate the extensive verification effort. In addition, current probabilistic, stochastic modeling and simulation developments, that are being implemented into ESSI Simulator, will be presented.

ΒΙΟΓΡΑΦΙΚΟ ΣΗΜΕΙΩΜΑ ΟΜΙΛΗΤΗ

Diploma Engineer Degree in Civil Engineering at Belgrade University, The Faculty of Civil Engineering, Engineering Mechanics and Theory of Structures Department, Belgrade, Yugoslavia, July 1989.

Master of Science Degree in Civil Engineering at the University of Colorado at Boulder, Department of Civil, Environmental and Architectural Engineering, May 1994.

Doctor of Philosophy Degree in Civil Engineering at the University of Colorado at Boulder, Department of Civil, Environmental and Architectural Engineering, July 1997.

Primary research interests are related to the computational modeling and simulation (rational mechanics formulation, computational implementation, practical applications) of static and dynamic inelastic behavior of engineering solids and structures with emphasis on geomechanics. Focus is on the development and use of methods that reduce Kolmogorov complexity and modeling uncertainty. In particular, current work is on:

- Computational geomechanics (statics and dynamics) including effects of deterministic and probabilistic elasto-plasticity, large deformation and coupling of solids and fluids.
- High performance (sequential and parallel) computer simulations in geomechanics.
- Earthquake Soil Structure Interaction.
- Models, software systems, simulations and visualization in mechanics.

Primary teaching interests are closely related to my research activities, focusing on theoretical, computational and applied aspects of geomechanics on both undergraduate and graduate levels. In particular, recent teaching is related to:

- Computational and theoretical geomechanics
- Nonlinear, static and dynamic finite element methods
- Application of the computer technology to solving practical civil engineering problems .