Institute of Thermomechanics Seminar

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Lecture No. 57

Czech Society for Mechanics and Institute of Thermomechanics, CAS

invite you to a sequence of three lectures within
the lecture series of **Institute of Thermomechanics Seminar**

Lecture series on Computational Plasticity

given by

Prof. Nikolaos Aravas

University of Thessaly, Greece

Prof. Nikolaos Aravas is a world-recognized specialist in the field of **Computational Mechanics of Materials**. His almost 33-years academic career has been associated with the University of Thessaly in Greece and the University of Pennsylvania. Prof. N. Aravas has made significant contributions in the fields of **computational plasticity**, non-linear **fracture mechanics**, **strain-gradient elasticity theories**, and modelling of **mechanical behaviour of human tissue**. His current research interests include non-linear **homogenization theories for multi-phase media** and the analysis of electromechanical problems including **piezoelectricity and flexo-electricity**.

Lecture 1

General form of elastoplastic constitutive equations. Rate-dependent versus rate-independent models. The elastoplastic boundary value problem. The weak formulation of the problem.

Lecture 2

Finite element formulations. Methods of solution of non-linear finite element problems. Consistent linearization. Algorithms for the numerical integration of general elastoplastic models. Backward versus forward Euler methods.

Lecture 3

Applications: von Mises plasticity, pressure-dependent plasticity, the Gurson model, general isotropic plasticity, J3-dependence, kinematic hardening, rate-dependent models, implementation in general purpose commercial finite element codes, e.g., ABAQUS.

The lectures will be held:

on Tuesday, November 6, 2018 at 14:00 - Lecture 1
on Wednesday, November 7, 2018 at 14:00 - Lecture 2
on Friday, November 9, 2018 at 14:00 - Lecture 3

in the building of the Institute of Thermomechanics,
lecture room B, Dolejškova 5, 182 00 Praha 8

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