Lecture No. 61

**Czech Society for Mechanics
and Institute of Thermomechanics, CAS**

invite you to a lecture and discussion within
the lecture series **Institute of Thermomechanics Seminar**

Theoretical and implementation problems
of the multi-dimensional Fokker-Planck equation
analysis using the Finite Element Method

given by

Dr. Jiří Náprstek

Institute of Theoretical and Applied Mechanics
The Czech Academy of Sciences, Prague

Fokker–Planck equation is one of the most important tools for investigation of dynamic systems under random excitation. Finite Element Method represents very effective solution possibility particularly when transition processes are investigated or more detailed solution is needed. However, a number of specific problems must be overcome. They follow predominantly from the large multi-dimensionality of the Fokker–Planck equation, shape of the definition domain and usual requirements on the nature of the solution which are out of a conventional practice of the Finite Element employment. Unlike earlier studies it is coming to light that multi-dimensional simplex elements are the most suitable to be deployed. Moreover, new original algorithms for the multi-dimensional mesh generating were developed as well as original procedure of the governing differential and algebraic systems assembling and subsequent analysis. Finally, an illustrative example is presented together with aspects typical for the problem with large multi-dimensionality.

**The lecture will be held on Wednesday, February 13, 2019 at 10:00 in the building
of the Institute of Thermomechanics (lecture room B), Dolejškova 5, 182 00 Prague 8**

Contact persons: Radek Kolman, Hanuš Seiner