

## **FROM MACROMECHANICS THROUGH MICROMECHANICS TO NANOMECHANICS**

December 29, 1958 is thought to be date of the beginning of micromechanics and nanomechanics, when at the California Institute of Technology the Nobel prize winner Richard P. Feynman delivered a lecture within the American Physical Association. He introduced at the lecture a vision of reducing the size of machines to nano-size. At that time, professor Feynman could not see the economic implications of the devices made on the basis of nanotechnology. Nanomechanics and micromechanics are becoming increasingly important in today's industry. The concepts of invisible aircraft, pumps ... are now a reality. At the same time, problems have arisen in advanced mechanics not even dreamed of before. Thermodynamic and transport properties of a gas flowing through a tube with the diameter of a few nanometers are modelled completely differently due to a great influence of surface effects. Even classical hydromechanics is not of much help here. At the same time also vibration of nanotubes and nanostructures are different from physical point of view.

In the presentation will be to shown the phenomena effects to study dynamics, vibration, fluid mechanics and statistical mechanics from macro through micro to nano regime. At the same time the presentation will show you the applications of micromechanics and nanomechanics theory.