<u>Sreda,</u> 3. decembar 2008. u 18,00 h
Katica R. (Stevanović) Hedrih
Main chains and eigen modes of the fractional order hybrid multi pendulum system dynamics
A survey as short introduction-review of author's research results in area of dynamics of pendulum hybrid systems, as well as a analytical approach to the discrete material particle system dynamics containing creep elements with constitutive stress-strain relation described by fractional order derivative, are presented. First main research results presented in this manuscript are analytical expressions of the modes of three pendulum fractional order system vibrations. It is shown that two time modes (partial solutions) are pure periodical, and four time modes (particular solutions) are "creeping modes" as results of the creeping properties influence on standard light elements to the periodical pendulum mode vibrations with corresponding frequencies. By using analytical approach, for a fractional order hybrid multi pendulum system dynamics, eigen main chains, eigen modes and main coordinate are obtained. This second main and generalised result concerns the fractional order hybrid multi pendulum system dynamics.

<u>Sreda,</u> 10. decembar 2008. u 18,00 h
Veljko A. Vujičić
MILANKOVICEV ZADATAK VERIFIKACIJE NJUTNOVOG ZAKONA GRAVITACIJE
Osvrt na Milankovicev zadatak i razmisljanje sta je tog naucnika navelo da postavi takav zadatak. U susret svojoj pretpostavci predavac dopkazuje da Njutnova teorema o opstem zakonu gravitacije nije u saglasnosti sa osnovnim zakonima dinamike, tj. sa Njutnovim aksiomima. To se potvrdjuje na primerima problema dva i tri tela, kao i objavljenim radovima u domacim i stranim naucnim casopisima.

<u>Sreda,</u> 17. decembar 2008. u 18,00 h
Miloš M. Jovanović
SIMULATION OF TEMPORAL HYDRODYNAMIC STABILITY IN PLANE CHANNEL FLOW
We consider numerical simulation of temporal Hydrodynamic Stability of plane 2D incompressible Poiseuille flow. The two-dimensional Navier-Stokes equations have been used and reduced to vorticity-streamfunction form. The trigonometric polynomials have been used in homogeneous direction and Chebyshev polynomials in inhomogeneous direction. The problem of boundary conditions for vorticity has been solved by using the method of capacitance matrix. The Orr-Sommerfeld equation has been solved by using Chebyshev polynomials, and the linear combination of the obtained eigenfunctions has been optimized in regard to the corresponding eigenvalue. We present here the results of simulation for the perturbations optimized in regard to the least stable eigenvalue for the Reynolds number Re=1000.

<u>Sreda,</u> 24. decembar 2008. u 18,00 h
Mladen Radojković, Vera Nikolić, Zlatibor Vasić
THE INFLUENCE OF APERTURES POSITION UPON DISTRIBUTION OF TENSION AT THE ISOTOPIC PLANE FIELD
The distribution of tension, as known, is influenced not only by the load, the exploitation conditions, etc., but also by the geometric shapes of elements. Mechanical elements mostly have complex geometric shapes and they are weaken by some of the aperture shapes. The apertures at the mechanical parts, either transversal or vertical, are the sources of concentration of tension. Position of the aperture in relation to the direction of effect of external load, substantially influence on distribution of tension around the apertures as a source of concentration of tension. Therefore the aim of this study is the influence analysis of square aperture position, as a source of concentration of tension, upon distribution of tension. Only the parts of the isotopic materials exposed to the static loads have been considered during this research. In order to obtain the tension distribution results at the isotopic plane field weaken by apertures, the numerical method has been used. Taking the exact nature of the discussed problem into consideration, during this research The Finite Elements Method (FEM) has been chosen as one of the numerical methods.

Predavanja će se održati u Biblioteci Matematičkog institute SANU, Beograd, ul. Knez Mihailova 36, sa početkom u 18,00 h.