MATEMATIČKI INSTITUT SANU , ODELJENJE ZA MEHANIKU
Mathematical Institute SANU, Belgrade, Department for Mechanics
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Program of Mechanics Colloquium –FEBRUARY 2011

Sreda (Wednesday)**, 16 februar (February 16) 2011 u 18 sati (18h)**   **Lecture No. 1142**
dr **Slavica Ristić,** Scientific Research Professor, Institte ''Goša'', Belgrade
Flow Visualization   (Abstract)

Vizuelizacija strujanja

Vizualizacija strujanja je veoma važna oblast eksperimentalne aerodinamike kojoj je posvećen veliki broj istraživanja. To je skup metoda koje koriste savremena dostignuća nauke i tehnike i pomažu da se "vidi" kretanje nevidljivih fluida oko vazduhoplovnih i nevazduhoplovnih objekata u laboratoriskim postrojenjima, aerodinamičkim i vodenim tunelima ili u realnim uslovima. Savremeni razvoj kompjuterske tehnike i digitalna obrada slike omogućavaju automatsku analizu rezultata vizualizacije strujanja i dobijanje kvalitativne i kvantitativne vrednosti strujnih parametara, koji ne mogu da se dobiju klasičnim, konvencionalnim tehnikama merenja.

Najnoviji razvoj numeričkih metoda dinamike fluida (CFD) često koristi rezultate vizualizacije strujanja za proveru numeričkih rezultata, kao i za komparativnu analizu eksperimentalne i numeričke slike strujanja.

Biće prikazan pregled metoda vizualizacije strujanja, sa posebnim akcentom na optičke, odnosno laserske metode. To su holografska interferometrija (HI), laser Dopler anemometrija (LDA) i anemometrija na osnovu slike čestica (PIV). Rezultati istraživanja, koji su realizovani u Vojnotehničkom institutu i na Mašinskom fakultetu u Beogradu, ilustrovaće primenu ovih metoda.

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THE NEW MODEL OF MECHANISM BASED ON A DYNAMIC COUPLING OF UNIFORM LINEAR OSCILLATORY MOTION WITH ONE-WAY ROTATATIONAL MOTION

A new model of construction together with the principle of work of a dynamic system intended to transform uniform linear oscillatory motion into one-way rotatational motion is presented, which is protected by European patent EP labelled Nr. 1514026.

The base of the model consists of two kinematically coupled mass points oscillating around the movable suspension points. The driving linear motion is enabled by means of pistons through the system of levers affecting the movable suspension points. The coupling of the elements performing linear and rotational movement is dynamic.

It is a system with two degrees of freedom of movement which gives itself a flexiblility required to perform adjusting of thermodynamic parameters of the pistons moving within the cylinders with kinematic and kinetic parameters of the system. The „supernumerary" degree of freedom is taken away from the system by means of a relevant mechatronic control method providing a controlled mechanism motion in this way. The new principle of motion transformation is described presenting also the basic concept nad mathematical equations referring to mutual interconnection between the dynamic and kinematic system parameters. The attention is drawn to the basic control principles of a new system of motion transformation together with the constructive derivations which may have practical application. A physical model representing the new motion transformation is made and its functioning is described.

Предавања ће се одржавати средом са почетком у 18.00 часова, у сали 301 F на трећем спрату зграде Математичког института САНУ, Кнез Михаилова 36/III, (зграда преко пута главне зграде САНУ).

Позив научницима и истраживачима да пријаве сцоја предавања
Пријава потенцијалног предавача треба да садржи апстракт предавања до једне странице на српско језику ћирилицом и превод на енглески јесик, као и ЦВ обима до две странице. Пријаву послати на адресу управника одељења за механику у виду Word DOC на адресу: khedrih@eunet.rs

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Announcement and Invitation

Start of each lecture is at each Wednesday at 18,00 h in room 301 F at Mathematical Institute SANU, street Knez Mihailova 36/III.

All scientists and researchers in area of Mechanics are invited to contribute to the Program of Mechanics Colloquium of Mathematical Institute of Serbian Academy of Sciences and Arts. One page Abstract of proposed Lecture with short CV is necessary to submit in world doc to Head of Department of Mechanics (address: **khedrih@eunet.rs**), one month before first day in the next moth.

Katica R. (Stevanovic) Hedrih
Head of Department of Mechanics