SEMINAR ZA RAČUNARSTVO I PRIMENJENU MATEMATIKU
Matematički Institut SANU, Beograd, Knez Mihajlova 36

SEMINAR INSTITUTA ZA INFORMACIONE SISTEME,
Fakultet organizacionih nauka, Beograd, Jove Ilića 154

IEEE Chapter Computer Science (CO-16), Beograd, Srbija

PLAN RADA SEMINARA ZA MAJ 2015. GODINE

Petak, 08.05.2015. u 14:15, soba 301f, MI SANU :
!!!OBRATITE PAŽNJU NA TERMIN!!!
Zajednički sastanak sa Odeljenjem za matematiku, Odeljenjem za mehaniku, i Seminarom za istoriju i filozofiju matematike i mehanike

Katica R. (Stevanović) Hedrih, Matematički institut SANU

PETROVIC'S ELEMENTS OF MATHEMATICAL PHENOMENOLOGY AND PHENOMENOLOGICAL MAPPINS: THEORY AND APPLICATIONS

Abstract: Lecture starts with short description of Element of Mathematical Phenomenology and Phenomenological Mappings published in Petrovic's theory. The biographical data of Mihailo Petrovic (1868-1943) is presented. Petrovic was a famous Serbian mathematician, one of three Henrei Poincare's doctoral students. Next it is a description of abstraction of real system to the physical, chemical or biological and mathematical model. Some of basic elements of mathematical phenomenology are elements of non-linear-functional transformations of coordinates from one to other functional curvilinear coordinate system. Some of these elements, as it is basic vectors of tangent space of kinetic point vector position and their changes (velocity of their magnitude extensions and component angular velocities of rotations), are presented in different functional coordinate systems. Mihailo Petrovic's theory contains two types of analogies: mathematical and qualitative, and in this lecture third type - structural analogy is described. Taking into account large possibility for applications of all three types of analogies, numerous original examples are presented using, between other, fractional system dynamics with one degree of freedom, finite number of degrees of freedom as well as multi-body discrete continuum hybrid fractional order system dynamics. Mathematical analogies between vector models in local area of stress state, strain stare of the point in stressed and deformed deformable body as well as with vector model of the mass inertia moment state at point of rigid body, used mass inertia moment vectors coupled for pole and axis, are presented, also. Using discrete continuum method, fractional order mode analysis in hybrid system dynamics is presented. For a class of fractional order system dynamics with finite number of degrees of freedom, independent eigen main fractional order modes are determined with corresponding eigen main coordinates of the system and presented by Tables. A number of theorems of energy fractional order dissipation presented in corresponding Tables, also. It is shown that applications of qualitative, structural and mathematical analogies in analysis of fractional order modes appear in analogous mechanical, electrical and biological fractional order chains, and that is very power, suitable and useful tools to reduce research models to corresponding minimal numbers, and, in same time, develop power of analysis use phenomenological mappings between local and global phenomena and properties. An analogy between kinetic parameters of collision of two rigid body in translator motions and collision of two rolling billiards' balls is presented and corresponding new theorems are defined. Phenomenological approximate mappings on nonlinear phenomena, in local area around stationary points or stationary states, are presented. Corresponding kinetic parameters of model of nonlinear dynamics of real system behavior are presented, also. For obtaining approximate differential equations and approximate solutions in local area around singular points, linear and non-liner approximations are used. Method of local analysis based on phenomenological approximate mappings between local linear as well as nonlinear phenomena is power

to obtain information of all local nonlinear phenomena in the nonlinear dynamics of the system for completing kinetic elements for global analysis of the system nonlinear dynamics and stability and to use different analogies.

Utorak, 12.05.2015. u 14:15, soba 301f, MI SANU :
Jelena Jovanović, doktorant, Matematički fakultet, Univerzitet u Beogradu

OPTIMALAN USLOV ZA POLU-DISTRIBUTIVNOST MREŽE KONGRUENCIJA

Rezime: Izložićemo istraživanje karakterizacije svojstva polu-distributivnosti mreže kongruencija u konačnim algebrama (i šire, u lokalno konačnim varijetetima algebri) pomoću sintaksnih uslova, odnosno term-identiteta. Kao rezultat smo dobili uslov koji je jednostavniji od do sada postojećih i takođe najbolji mogući (tj. optimalan) . Posebnu pažnju posvetićemo delu istraživanja koji se odnosi na računarsku pretragu algebri polimorfizama malih digrafa. Predstavićemo primenjene metode i analizu vremenske složenosti.

Saradnici na ovim istraživanjima bili su P. Marković, R. McKenzie i M. Moore.

Utorak, 19.05.2015. u 14:15, soba 301f, MI SANU :
Ivan Zaklanović, Cisco Srbija

INTERNET OF EVERYTHING

Rezime: Internet of everything, odnosno Internet svega, treba da omogući povezivanje ljudi, mesta, procesa, stvari i podataka. Omogućen je razvojem tehnologija kao što su cloud computing, tehnologije mobilnog računarstva, i 3D štampe. Njegov razvoj se naročito vezuje za primenu Internet of Things tehnologija i inovacije u brojnim oblastima tehnike, od bežičnih senzora do nanotehnologije. U narednim godinama očekuju se intenzivnije povezivanje fizickog i virtuelnog sveta, razvoj novih poslovnih modela i promene u načinu života. Internet of everything se sve češće razmatra kao tehnološka oblast koja ce u znatnoj meri odrediti budućnost računarstva i komunikacija i koja predstavlja osnovu infrastrukture za pametniju planetu. U ovom predavanju biće napravljen pregled aktuelnih Internet of everything tehnologija kao i prikaz očekivanih pravaca razvoja i primene.

Utorak, 26.05.2015. u 14:15, soba 301f, MI SANU :
Nebojša Ikodinović, Matematički fakultet, Univerzitet u Beogradu

NEMONOTONO ZAKLJUČIVANJE

Rezime: Uopšteno govoreći, nemonotono zaključivanje odražava uobičajeno svojstvo ljudskog mišljenja - promenu mišljenja. Pri monotonom zaključivanju, zaključci izvedeni iz nekih premisa mogu biti izvedeni i iz bilo kog većeg skupa premisa. Pri nemonotonom zaključivanju, zaključci su privremeni, jer mogu biti povučeni kada se pojave neke nove informacije. Na predavanju će biti prikazani najznačajniji pristupi proučavanju nemonotonog zaključivanja, sa naglaskom na motivacionim primerima i primenama.

Rukovodioci seminara:

MI SANU: Vera Kovačević-Vujčić
Milan Dražić

FON: Zorica Bogdanović
Marijana Despotović-Zrakić

IEEE: Božidar Radenković