# Научно друштво Србије SCIENTIFIC REVIEW

**New Series** 

Series: Scientific and Engineering
Special Issue Nonlinear Dynamics 52 (2013)
Dedicated to Milutin Milanković (1879- 1958)

#### Guest Editors: Katica R. (Stevanović) Hedrih and Žarko Mijajlović

#### CONTENT

Milutin Milanković (1879- 1958) and Astrodynamics	1-
ADDRESS by Guest Editors	3-
Сравнительный анализ асимптотических методов интегрирования на примере уравнения Белецкого, Павел Красильников	7-3
A generalization of Lagrange method of variation constants, Katica R. (Stevanović) Hedrih	37-6
Linear and nonlinear reaction systems, Ljiljana Kolar-Anić, Željko Čupić	67-8
Short review on the models of Bray-Liebhafsky oscilltory reaction.  B. Stanković, S. Anić	89-11
Bright solitons from defocusing nonlinearities, Olga V. Borovkova, Yaroslav V. Kartashov, Lluis Torner, and Boris A. Malomed	113-12
Modern concepts of actively controlled smart structures - Anoverall design approach,  Tamara Nestorović	123-14
Further results on applications of fractional calculus in nonlinear dynamics  - Stability and control issues.  Mihailo Lazarević	149- 17
Differential equations of motionfor mechanical systems with nonlinear nonholonomic constraints – various forms and their equivalence, Dragomir N. Zekovic	179-19
The new form of force function of two finite bodies in terms of modified Delaunay's and Andoyer's angle variables,  Alexander Zlenko	197-20
Some aspects of bird impact theory, Marinko Uarčić	207-22

UDK 001

SPECIAL ISSUE NONLINEAR DYNAMICS S2 (2013)

SCIENTIFIC REVIEW

Dedicated to Milutin Milanković (1879- 1958)

YU ISSN 0350-2910

#### SERBIAN SCIENTIFIC SOCIETY

HTTP://AFRODITA.RCUB.BG.AC.RS/~NDS

HTTP://AFRODITA.RCUB.BG.AC.RS/~NDS/INDEXE.HTM

Научно друштво Србије

## **SCIENTIFIC REVIEW**

**New Series** 

**Series: Scientific and Engineering** 

Special Issue Nonlinear Dynamics 52 (2013)

Dedicated to

Milutin Milanković (1879- 1958)

Guest Editors: Katica R. (Stevanović) Hedrih and Žarko Mijajlović

> Belgrade 2013

SERBIAN SCIENTIFIC SOCIETY Belgrade • Šafarikova 7



СЕРБСКОЕ НАУЧНОЕ ОБЩЕСТВО Вемград Шафарикова 7

#### НАУЧНО ДРУШТВО СРБИЈЕ 11000 Београл - Шафарибова 7 - Тел. 381 11 32 24 939

UDK 001 YU ISSN 0350-2910

### Научно друштво Србије

## **SCIENTIFIC REVIEW**

**New Series** 

**Series: Scientific and Engineering** 

Editor-in-Chief: Slobodan Perović

Belgrade 2013

SERBIAN SCIENTIFIC SOCIETY Belgrade • Šafarikova 7



СЕРБСКОЕ НАУЧНОЕ ОБЩЕСТВО Белград Шафагикопа 7

#### НАУЧНО ДРУШТВО СРБИЈЕ 11000 Београд - Шафарибова 7 - Tea. 381 11 32 24 939

## Content (continued)

Generalized Van der Pol oscillators: From a limit cycle to the entrainmeent phenomenon,  Ivana Kovacic	. 223- 236
Nonlinear oscillatory flows with different symmetry properties in two-layer systems,  Ilya B. Simanovskii	. 237- 244
The use of Finite Elements Method in vibrational properties characterization of mouuse embryo,  Anadjelka Hedrih, Marinko Ugrčić	245-254
Application of R-Functions theory to study nonlinear vibrations of laminated shallow shells and plates L. Kurpa, N. Budnikov, T. Shmatko	
Emulsions and double emulsions as particular examples of memristive systems,  A.M. Spasic	269-288
On stability of syngular time delay systemsover the finite time interval: Classical and LMI criteria, S. B. Stojanovic, D. LJ. Debeljkovic	289-302
Mathematical model of aerial robots as the basis for the new research.  Mirjana Filipovic	
Analylysis of a rigid bdy rotations around two no intersecting axes  - Vector method and parameter analysis of pjase trajectories, Ljiljana Veljović	319-324
Three parametric testing of singularity and position of non-linear dynamic relative balance of heavy material particle on eccentrically rotating smooth circle line, Marija Stamenković, Marija Mikić	325-332
Optimal acement of piezoelectric actuators and sensors for smart structures using genetic algogorithm,  S.M. Garmabi <sup>1</sup> , M. Trajkov, T. Nestorović	333-346
H2 and H∞ based optimal placement of actuators and sensors for active vibration control, Miroslav Trajkov, Tamara Nestorović	
Optimal design of thin-walled aircraft structure using two-level optimization approach, S. Maksimovic, K. Maksimovic and I. Vasovic	359-372
Dynamics of geat-pair systems with periodic varying mesh stiffness - Spur gears VS helical gears, I. Atanasovska, M. Vukšić Popović	373-388
Elements of dynamic modifications and sensitivity considering the efect of structural parameters uncentainty, Nataša Trišović, Wei Li, Taško Maneski, Mirjana Misita, Ljubica Milović	389-404
Dynamical model of bucket wheel excavator main subsystems.  7. Galubayić 7. Lekić <sup>1</sup> S. Makragić	405-412