

**XII International Conference
on
Systems, Automatic Control and Measurements**

SAUM 2014



Proceedings



**University of Niš
Faculty of Electronic Engineering
Faculty of Mechanical Engineering
Aleksandra Medvedeva 14, 18000 Niš
Serbia
November 12-14, 2014**

Proceedings of the XII International Conference on Systems, Automatic Control and Measurements - SAUM 2014 -

Publishers: Faculty of Electronic Engineering, Niš
Faculty of Mechanical Engineering, Niš
SAUM - Association of Serbia for Systems, Automatic Control and Measurements

Editors: Prof. Dr. Vlastimir Nikolić
Prof. Dr. Dragan Antić
Assistant Prof. Dr. Darko Mitić

Technical Assistance: Dr. Marko Milojković
Dr. Saša S. Nikolić
Staniša Perić
Miodrag Spasić
Nebojša Jotović
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ISBN 978-86-6125-117-7

CIP - Каталогизacija y publikaciji
Народна библиотека Србије, Београд

681.5(082)
62-52(082)
621.317(082)
53.08(082)
007:004(082)
007.52(082)

INTERNATIONAL Conference on Systems,
Automatic Control and Measurements (12 ; 2014
; Niš)
Proceedings / XII International Conference
on Systems, Automatic Control and
Measurements, SAUM 2014, Niš, November 12-14,
2014 ; organized by SAUM - Association of
Serbia for Systems, Automatic Control and
Measurements ... [et al.] ; [editors
Vlastimir Nikolić, Dragan Antić, Darko
Mitić]. - Niš : Faculty of Electronic
Engineering ; Faculty of Mechanical
Engineering ; Belgrade : SAUM - Association
of Serbia for Systems, Automatic Control and
Measurements, 2014 (Niš : Unigraf X-Copy). -
XIV, 385 str. : ilustr. ; 30 cm

Tekst štampan dvostubačno. - Tiraž 150. -
Bibliografija uz svaki rad.

ISBN 978-86-6125-117-7 (FEE)
1. Association of Serbia for Systems,
Automatic Control and Measurements (Beograd)
a) Системи аутоматског управљања -
Зборници b) Мерна техника - Зборници c)
Мерни инструменти - Зборници d)
Информациона технологија - Зборници e)
Роботика - Зборници
COBISS.SR-ID 211097356

No. of copies: 150
Printed by: Unigraf X-Copy, Niš

**Proceedings of the
XII International Conference
on Systems, Automatic Control and Measurements
- SAUM 2014 -**

Niš, Serbia, November 12-14, 2014

Organization supported by



**Ministry of Education, Science and Technological Development
Republic of Serbia**

Organized by



SAUM – Association of Serbia for Systems, Automatic Control and Measurements

Co-organized by



**University of Niš
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**XII International Conference
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SAUM is one of the leading associations in Serbia, in the field of Automatic Control. The Association SAUM (Systems, Automatic Control and Measurements) exists from 1985., under the name of Serbian Association for Systems, Automatic Control and Measurements-SAUM for short and it grew out from the Association USAUM, which was founded in 1980. and is working as a member of Association of Engineers and Technicians of Serbia. The Association gathers scientists and engineers from this field. In this period, SAUM achieved very significant goals, among which are three-year scientific conferences, held from 1982., which became a tradition. The first SAUM Conference was held in Belgrade and was dedicated to Professor Dr. Dušan Mitrović, a member of Serbian Academy of Science and Arts a research pioneer in the field of Automatic Control in Serbia. Following conferences were held in Belgrade, 1986., Vrnjačka Banja, 1989., Kragujevac, 1992., Novi Sad, 1995., Niš, 1998., Kraljevo, 2001., Belgrade, 2004., Niš, 2007., Niš, 2010. and Niš, 2012.

The first five Conferences were held in the Serbian language and were national with international participants. The other Conferences were international and English was official language. SAUM Conferences are considered highly esteemed meetings both in national and international scientific circles dealing with research and knowledge application in the fields of Systems, Automatic Control and Measurements. The facts that support previously mentioned are that more than 700 papers have been presented at SAUM Conferences, with many national and international participants.

Additionally, SAUM held two international seminars in Belgrade, first in 1985. and the second in 1987. Beside SAUM Conferences and seminars, there were many scientific lectures and meetings from the fields of SAUM. Also, SAUM, was co-publisher of the Journal "CYBERNETICS" - Systems, Automatic Control and Measurements, from 1987. until 1990. (12 volumes per year).

This year SAUM Conference has 91 papers, with participants from 8 countries. The papers are divided into 20 Sessions and 2 Workshops, and the main topics are industrial and process control, measurements and instrumentation, mechatronics, robotics, system identification and modeling, nonlinear systems, information and communication technologies, intelligent control, hydraulic systems, telecommunications, applied mathematics, management and control. As mentioned above, IPA ADRIA-HUB and NORBAS workshops are organized within SAUM Conference, as well.

We wish to mention our gratefulness to the conference sponsors for their support.

Furthermore, Faculty of Electronic Engineering in Nis and Faculty of Mechanical Engineering in Nis have contributed to the conference organization the most.

Niš, November 2014.

Prof. Dr. Vlastimir Nikolić
President
of
SAUM Association
and
Program Committee

SAUM 2014

CONFERENCE PROGRAM

SESSIONS OVERVIEW

Wednesday, November 12, 2014		
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10:00 – 11:00	Registration	
11:00 – 11:30	Opening Ceremony	Room 1
11:30 – 12:00	Plenary Session I	Room 1
12:00 – 13:00	Cocktail	
13:00 – 14:00	Plenary Session II	Room 1
14:00 – 14:15	Mitsubishi Presentation	Room 1
14:15 – 15:45	Session A: Measurements and Instrumentation I (<i>Chairperson:</i> D. Denić)	Room 1
14:15 – 15:45	Session B: Robotics (<i>Chairperson:</i> G. S. Djordjević)	Room 2
14:15 – 15:45	Session C: System Identification and Modeling I (<i>Chairperson:</i> B. Danković)	Room 3
16:00 – 19:00	IPA Adria-Hub Workshop	Room 1
16:00 – 17:30	Session D: Information and Communication Technologies I (<i>Chairperson:</i> Z. Nikolić)	Room 2
16:00 – 17:30	Session E: Industrial and Process Control I (<i>Chairperson:</i> V. Nikolić)	Room 3
20:00	Conference Dinner	

Thursday, November 13, 2014		
Time	Activities	Place
10:00 – 11:30	Session F: Nonlinear Systems (<i>Chairperson:</i> N. D. Pavlović)	Room 1
10:00 – 11:30	Session G: Intelligent control (<i>Chairperson:</i> Ž. Čojbašić)	Room 2
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IPA ADRIA-HUB WORKSHOP

Workshop Chairperson: M. Milojković

16:00 – 16:15	M. Milojković, Opening Presentation
16:15 – 18:30	Invited Lecture K. Krsmanović Industrial Design and Digital Fabrication
18:30 – 18:45	Regular paper M. Milojković, M. Milovanović, D. Mitić, S. Perić, M. Spasić, S. Nikolić Improving Woodworking Industry Through Implementation of IPA Project ADRIA HUB
18:45 – 19:00	Regular paper N. Nedić, Lj. Lukić, D. Pršić, Lj. Dubonjić, V. Brašić Automatic Machines with Multiple Axes Wood Processing in Small and Medium Enterprises

NORBAS WORKSHOP

Workshop Chairpersons: T. R. Jørgensen, G. T. Djordjević, M. Ljubičić

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11:30 – 12:30	Invited Lecture (together with other SAUM participants) T. R. Jørgensen Ways to Enhance Innovation
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15:45 – 17:15	Presentation of scientific cooperation within NORBAS D. Vuković, WEB Services M. Velotić, Digital Signal Processing N. Zdravković, Telecommunications M. Spasić, Control Systems
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L. Dimitrov, S. Spasov Waste Elimination in Manufacturing. Human factor

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Session N	N4 • Regular paper
N. Simić, M. Veljković, D. Milović First-Order Statistics Analysis of SC Macrodiversity over Gama Shadowed Nakagami-m Fading Channels	

Session O: HYDRAULIC SYSTEMS

Chairperson: M. M. Stojiljković

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D. Janošević, I. Savić, V. Jovanović, J. Pavlović Regulation for Hydrostatic Transmission of Machines and Vehicles	
Session O	O2 • Regular paper
J. Pavlović, D. Janošević, V. Jovanović, I. Savić Motion Regulation of the Wheel Loaders	
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V. Jovanović, D. Janošević, J. Pavlović, N. Petrović Control of Slewing Platform Drive of Mobile Machines	
Session O	O4 • Regular paper
J. D. Nikodijević, Ž. M. Stamenković, M. M. Kocić, M. D. Nikodijević Control of Flow and Heat Transfer Using Suction, Magnetic and Electric Fields	
Session O	O5 • Regular paper
B. Bogdanović, D. Milenković, J. Bogdanović-Jovanović, Ž. M. Stamenković Optimization of Axial Pico Hydro Turbine	

Session P: APPLIED MATHEMATICS

Chairperson: S. S. Nikolić

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D. Lj. Petković, M. J. Madić, G. M. Radenković Material Selection for Micro-Electromechanical Systems Using MADM Approach	
Session P	P2 • Regular paper
P. M. Rajković, M. S. Stanković, S. D. Marinković Polynomials of Mittag-Leffler Type with an Additional Parameter	
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Lj. D. Petković On Multipoint Methods of Jarrat's Type for Solving Nonlinear Equations and Systems of Nonlinear Equations	

Session R: MANAGEMENT AND CONTROL

Chairperson: V. A. Blagojević

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I. D. Radojković, P. M. Milosavljević Methodological Framework for Risk Management in Automobile Insurance on the Territory of the Town of Nis	
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N. V. Floranović, M. Radić, Z. P. Stajić Smart Metering and Power Loggers as Key Element of Effective Energy Efficiency Improvement	
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D. M. Mitrović, B. D. Blagojević, B. V. Stojanović, J. N. Janevski, M. G. Ignjatović, M. M. Stojiljković Application of Remote Control and Data Acquisition in District Heating System	