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<b>Country</b>	<b># Papers</b>	<b>%</b>
<b>TOTAL</b>	<b>150</b>	<b>100.00</b>
United States	23	15.33
Japan	22	14.67
Latvia	13	8.67
China	12	8.00
Russian Federation	11	7.33
Brazil	8	5.33
Austria	7	4.67
Colombia	5	3.33
Taiwan	5	3.33
Germany	3	2.00
South Korea	3	2.00
Canada	2	1.33
Hong Kong	2	1.33
India	2	1.33
Italy	2	1.33
Lebanon	2	1.33
Mexico	2	1.33
Saudi Arabia	2	1.33
South Africa	2	1.33
Thailand	2	1.33
Argentina	1	0.67
Bulgaria	1	0.67
Chile	1	0.67
Czech Republic	1	0.67
Ecuador	1	0.67
Iran	1	0.67
Iraq	1	0.67
Israel	1	0.67
Kazakhstan	1	0.67
Morocco	1	0.67
Netherlands	1	0.67
Nigeria	1	0.67
Pakistan	1	0.67
Paraguay	1	0.67
Peru	1	0.67
Poland	1	0.67
Qatar	1	0.67
Slovakia	1	0.67
United Kingdom	1	0.67
Vietnam	1	0.67



## Foreword

Our purpose in the 19<sup>th</sup> World Multi-Conference on Systemics, Cybernetics and Informatics (WMSCI 2015) is to provide, in these increasingly related areas, a ***multi-disciplinary forum, to foster interdisciplinary communication*** among the participants, and to support the sharing process of diverse perspectives of the same transdisciplinary concepts and principles.

Systemics, Cybernetics and Informatics (SCI) are being increasingly related to each other in almost every scientific discipline and human activity. Their common transdisciplinarity characterizes and communicates them, generating strong relations among them and with other disciplines. They work together to create a whole new way of thinking and practice. This phenomenon persuaded the Organizing Committee to structure WMSCI 2015 as a multi-conference where participants may focus on one area, or on one discipline, while allowing them the possibility of attending conferences from other areas or disciplines. This systemic approach stimulates cross-fertilization among different disciplines, inspiring scholars, originating new hypothesis, supporting production of innovations and generating analogies; which is, after all, one of the very basic principles of the systems' movement and a fundamental aim in cybernetics.

WMSCI 2015 was organized and sponsored by the International Institute of Informatics and Systemics (IIS, [www.iis.org](http://www.iis.org)), member of the International Federation of Systems Research (IFSR). The IIS is a ***multi-disciplinary organization for inter-disciplinary communication and integration***, which includes about 4500 members. Consequently, a main purpose of the IIS is to foster knowledge integration processes, interdisciplinary communication, and integration of academic activities. Based on 1) the transdisciplinarity of the systemic approach, along with its essential characteristic of emphasizing *relationships* and *integrating* processes, and 2) the multi-disciplinary support of cybernetics' and informatics' concepts, notions, theories, technologies, and tools, the IIS has been organizing multi-disciplinary conferences as a platform for fostering inter-disciplinary communication and knowledge integration processes.

Multi-disciplinary conferences are organized by the IIS as support for both **intra-** and **inter-disciplinary** communication. Processes of intra-disciplinary communication are mainly achieved via traditional paper presentations in corresponding disciplines, while conversational sessions, regarding trans- and inter-disciplinary topics, are among the means used for inter-disciplinary communication. Intra- and inter-disciplinary communications might generate *co-regulative cybernetic loops*, via negative feedback, and *synergic* relationships, via positive feedback loops, in which both kinds of communications could increase their respective effectiveness. Figure 1 shows at least two cybernetic loops if intra- and inter-disciplinary are adequately related. A necessary condition for the effectiveness of Inter-disciplinary communication is an adequate level of **variety** regarding the participating disciplines. *Analogical thinking and learning processes* of disciplinarians depend on it; which in turn are potential sources of the creative tension required for cross-fertilization among disciplines and the generations of new hypothesis. An extended presentation regarding this issue can be found at [www.iis.org/MainPurpose](http://www.iis.org/MainPurpose).

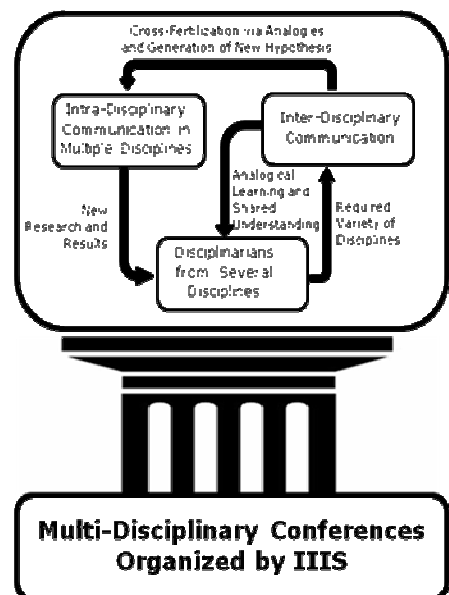


Figure 1

In the specific case of Systemics, Cybernetics and Informatics (SCI), the IIIS is an organization dedicated to contribute to the development of the Systems Approach, Cybernetics, and Informatics potential, using both: knowledge and experience, thinking and action, theory and practice, for:

- a) the identification of synergetic relationships among Systemics, Cybernetics and Informatics, and between them and society;
- b) the promotion of contacts among the different academic areas, through the transdisciplinarity of the systems approach;
- c) the identification and implementation of communication channels among the different professions;
- d) the supply of communication links between the academic and professional worlds, as well as between them and the business world, both public and private, political and cultural;
- e) the stimulus for the creation of integrative arrangements at different levels of society, as well as at the family and personal levels;
- f) the promotion of transdisciplinary research, both on theoretical issues and on applications to concrete problems.

These IIIS objectives have oriented the organizational efforts of yearly WMSCI/ISAS conferences since 1995.

On behalf of the Organizing Committee, I extend our heartfelt thanks to:

1. The 731 members of the Program Committee from 58 countries (including the PC members of the events organized in its context and jointly with it). Almost all the members of the Program Committee are *authors or co-authors sessions' best papers*, i.e. papers selected by the respective audience as the best paper of the session in which they were presented;
2. The 618 additional reviewers, from 72 countries, for their **double-blind peer reviews**; and
3. The 227 reviewers, from 49 countries, for their efforts in making the **non-blind peer reviews**. (Some reviewers supported both: non-blind and double-blind reviewing for different submissions).

A total of 1332 reviews made by 845 reviewers (who made at least one review) contributed to the quality achieved in WMSCI 2015. This means an average of 5.82 reviews per submission (229 submissions were received). *Each registered author had access, via the conference web site, to the reviews that recommended the acceptance of their respective submissions*. Each registered author could also get information about: 1) the average of the reviewers evaluations according to 8 criteria, and the average of a global evaluation of his/her submission; and 2) the comments and the constructive feedback made by the reviewers, who recommended the acceptance of his/her submission, so the author would be able to improve the final version of the paper.

In the organizational process of WMSCI 2015, about 229 articles were submitted. These pre-conference proceedings include about 150 papers that were accepted for presentation from 40 countries (48 countries taking into account the presentations in collocated events). I extend our thanks to the invited sessions' organizers for collecting, reviewing, and selecting the papers that will be presented in their respective sessions. The submissions were reviewed as carefully as time permitted; it is expected that most of them will appear in a more polished and complete form in scientific journals.



This information about WMSCI 2015 is summarized in the following table, along with the other collocated conferences:

Conference	# of submissions received	# of reviewers that made at least one review	# of reviews made	Average of reviews per reviewer	Average of reviews per submission	# of papers included in the proceedings	% of submissions included in the proceedings
WMSCI 2015	229	845	1332	1.58	5.82	150	65.50%
IMSCI 2015	99	356	722	2.03	7.29	50	50.51%
CISCI 2015	143	571	1243	2.18	8.69	79	55.24%
<b>TOTAL</b>	<b>471</b>	<b>1772</b>	<b>3297</b>	<b>1.86</b>	<b>7.00</b>	<b>279</b>	<b>59.24%</b>

We also extend our gratitude to the invited sessions organizers: Dr. Shigehiro Hashimoto, Dr. Natalja Lace, Dr. Oleg Goriachkin, Dr. Jang-Ruey Tzeng, and Dr. Miguel David Rojas López, as well as the special track co-chairs and the co-editors of these proceedings, for the hard work, energy and eagerness they displayed preparing their respective sessions. We express our intense gratitude to Professor William Lesso (1931-2015) for his wise and opportune tutoring, for his eternal energy, integrity, and continuous support and advice, as the Program Committee Chair of past conferences, and as Honorary President of WMSCI 2015, as well as for being a very caring old friend and intellectual father to many of us. We also extend our gratitude to Professor Belkis Sánchez, who brilliantly managed the organizing process.

Our gratitude to Professors Bela H. Banathy, Stafford Beer, George Klir, Karl Pribram, Paul A. Jensen, and Gheorghe Benga who dignified our past WMSCI conferences by being their Honorary Presidents. Special thanks to Dr. C. Dale Zinn and Professor Jorge Baralt for co-chairing WMSCI 2015 Program Committee and to professors Andrés Tremante and Belkis Sánchez for co-chairing the Organizing Committee. We also extend our gratitude to the following scholars, researchers, and professionals who accepted to deliver plenary workshops and/or to address the audience of the General Joint Plenary Sessions with keynote addresses.

**Plenary Workshop**, more details (abstracts and short bios) were included in the Conference Program booklet and at <http://www.iiis.org/summer2015plenaryevents/>

**Professor Emeritus Stuart Umpleby**, The George Washington University, USA, Former President of The American Society of Cybernetics.

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Our gratefulness is also extended to the organizations that provided scientific, academic, professional, or corporative co-sponsorships. The following are among these organizations:



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WMSCI 2015 General Chair  
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## VOLUME I

## CONTENTS

### Contents

i

### **Optimal Stochastic Space-Time Fields Processing in Radio-Engineering, Telecommunication and Remote Sensing Systems - Invited Session**

**Organizer: Oleg Goriachkin (Russian Federation)**

Berezovskiy, Andrey; Goriachkin, Oleg (Russian Federation): "Exact Solution of the Two-Dimensional Multichannel Blind Deconvolution Problem Applied to the Identification of MIMO System with Spatial-Time Code" 1

Borisenkov, Alexei V.; Goriachkin, Oleg V.; Dolgoplov, Vadim N.; Zhengurov, Boris G. (Russian Federation): "Optimal Signal Processing in Bistatic SAR" 6

Nikolaev, Boris I.; Chingaeva, Anna M. (Russian Federation): "Differential Synchronization Method for ISI Channels" 12

Skobelev, Petr; Lada, Alexander; Mayorov, Igor (Russian Federation): "Finding an Initial Plan of Transport Resources FTL Allocation in a Special VRP Problem Using Linear Programming Methods" 16

Tarasov, Veniamin; Bakhareva, Nadezhda; Ushakov, Yuri (Russian Federation): "Statistical Processing of Wireshark Analyzer Results to Determine the Numerical Characteristics of Incoming Traffic Intervals" 22

### **Towards Business Sophistication and Sustainability - Invited Session**

**Organizer: Natalja Lace and Elina Gaile-Sarkane (Latvia)**

Appalanova, Natalia; Bazarov, Rustam; Syurkova, Sofia; Faizrakhmanova, Elmira (Russian Federation): "Evaluation of Non-Profit's Approaches towards Financial Resources Optimization: The Case of Russia" 27

Balina, Signe; Arhipova, Irina; Paulins, Nauris; Baumgarte, Dace (Latvia): "Learning Content Delivery Environment Model for Mobile Devices" 33

Bistrova, Julija \*; Lace, Natalja \*; Atygayeva, Zukhra \*\* (\* Latvia, \*\* Kazakhstan): "Estimation of Innovation Value Adding Effect on the National Economy Development" 39

Erina, Jana; Erins, Ingars (Latvia): "Determination of Tuition Expenses According to Thematic Fields and Indices Applicable to them at Higher Education Institutions in Latvia" 45

Erina, Jana; Erins, Ingars (Latvia): "Assessment of Profitability of Latvian Commercial Banks Using OLS Evaluation Method" 51

Faizrahmanova, Elmira; Syurkova, Sofia; Appalonova, Natalia; Bazarov, Rustam (Russian Federation): "The Influence of Innovation onto Business Sustainability"	57
Hudenko, Justina; Pocs, Remigijs (Latvia): "The Discrepancy between the Service Export Incomes of Rail and Sea Transport among Baltic States Transit Corridors"	63
Kocmanova, Alena; Pavlakova Docekalova, Marie; Nemecek, Petr (Czech Republic): "Utilization of Multidimensional Methods for Corporate Sustainability"	69
Lapiņa, Inga; Aramina, Daira; Kairiša, Ilze (Latvia): "Influence of Organizational Culture on the Continuous Improvement: Empirical Study at University"	76
Lentjushenkova, Oksana; Lapina, Inga (Latvia): "Factors Influencing Investments in Intellectual Capital: Case of Latvia"	82
Rosha, Angelina; Lace, Natalja (Latvia): "Coaching and Other Practices in Facilitating Organizational Change"	88
Shatreovich, Vladimir; Gaile-Sarkane, Elina (Latvia): "A Strategic Fit Relation Model as a Tool for Organization Development"	94
Svirina, Anna; Dashina, Elena; Zabbarova, Alfia (Russian Federation): "Social Business in Emerging Economy of Networks"	100
Svirina, Anna; Parfenova, Elena; Shurkina, Elena (Russian Federation): "Reducing Uncertainty: Implementation of Heisenberg Principle to Measure Company Performance"	106
Titko, Jelena *; Kozlovskis, Konstantins *; Kaliyeva, Gulbakhyt ** (* Latvia, ** Kazakhstan): "Relationship between Concentration, Competition and Efficiency in the Banking Sector"	112
Titko, Jelena *; Dauylbaev, Kuandyk ** (* Latvia, ** Kazakhstan): "Testing Quiet Life Hypothesis in the Banking Sector"	118
<b>Communication and Network Systems, Technologies and Applications</b>	
Hu, Wen-Chen *; Kaabouch, Naima *; Yang, Hung-Jen ** (* USA, ** Taiwan): "A Location-Based Service Using Geometric Location Methods to Unite Mobile Users"	124
Naito, Katsuhiro; Mori, Kazuo; Kobayashi, Hideo (Japan): "Implementation of Agricultural Sensor Network Systems Based on Arduino Based Microcomputer Board with Bluetooth Low Energy"	129
<b>Computer Science and Engineering</b>	
Ledesma, Sergio; Ruiz, José; García, M. G.; Hernández, Donato (Mexico): "Analysis of Antenna Stability Using Simulated Annealing"	135
Lee, Samuel Sangkon (South Korea): "Vector Space Expansion Method Using the Information of Ambiguous and Disambiguous Words"	140

Lin, Yu-Sheng; Way, Der-Lor; Shih, Zen-Chung (Taiwan): "Screen Space Global Illumination with Reusing Cached Information"	146
Osman, Ziad; Zantout, Rached (Lebanon): "Using Statistical Properties to Enhance Text Categorization"	152
Peláez, J. I.; Vaccaro, Gustavo; Guijarro, Alfonso (Ecuador): "OWA Aggregation for Attenuating Missing Data Problems"	157
Peredo Valderrama, R.; Peredo Valderrama, I.; Ruiz Ledesma, E. F.; Vicario Solórzano, C. M.; Olivares Ceja, Jesús Manuel (Mexico): "General Architecture for Intelligent Systems Based on WBE"	163
Sato, Tomoaki *; Chivapreecha, Sorawat **; Moungnoul, Phichet ** (* Japan, ** Thailand): "A Connection Block Implemented in the RTL Design for Delay Time Equalization of Wave-Pipelining"	169
<b>Control Systems, Technologies and Applications</b>	
Ashimov, Abdykappar; Borovskiy, Yuriy; Borovskiy, Nikolay; Adilov, Zheksenbek; Alshanov, Rakhman; Sultanov, Bahyt (Kazakhstan): "Optimal Regional Economic Policy Based on the Parametric Control Theory and One Global Model"	175
Calderón, Jesús A. *; Tafur, Julio C. *; Chernukhin, Victor ** (* Peru, ** Germany): "Analysis and Implementation of Active Noise Control Strategies Using Piezo Actuators"	180
Gregor, Raúl; Takase, Yoshihico; Rodas, Jorge; Carreras, Leonardo; López, Andrés; Gregor, Derlis (Paraguay): "Integration of ICTs in a Bi-Axial Solar Tracking System for Photovoltaic Applications"	186
Ha, Seok-Wun; Moon, Yong-Ho; Cheon, Seung-Hyeon (South Korea): "An Effective Surveillance System in Narrow Area Using Two Small UAVs"	192
Mikhaylov, Dmitry; Zhukov, Igor; Lukyanenko, Leonid; Boruchinkin, Alexander; Sychoy, Nikolay; Froimson, Mikhail; Zuykov, Alexander; Dusha, Igor (Russian Federation): "Proposal to Develop a Software Tool for Positioning and Protection of Confidential Information in a Mobile Phone"	196
Reinhofer, Stephan; Ernst, Markus; Fabian, Jürgen (Austria): "Strategies for the Development and Analysis of Functional Safe Automotive Mechatronic Systems"	202
Wongsuwarn, Hataitap (Thailand): "Neuro-Fuzzy System Technique for Obstructed Avoidance of Several Mobile Robot"	206
<b>Ethics, Cybernetics and Informatics</b>	
Dudley, Alfreda; Braman, James (USA): "Using Virtual Worlds in Ethical Case Studies: Evaluating Computing Students' Perceptions"	212

## **Human Information Systems**

- Miyamoto, Ryusuke; Aoki, Risako (Japan): "Gender Prediction by Gait Analysis Based on Time Series Variation of Joint Positions" 216

## **Image and Multidimensional Signal Processing**

- Grotheer, Rachel; Khan, Taufiqar (USA): "Application of the Reduced Basis Method to the Forward Problem of Hyperspectral Diffuse Optical Tomography" 222
- Miyamoto, Ryusuke; Hirose, Yutaka; Kobayashi, Shingo (Japan): "Feasibility Study of Depth Classification by Out-of-Focus Blur in an Image Based on CRF" 228
- Miyamoto, Ryusuke; Oki, Takuro (Japan): "Feasibility Study of Crosswise Region Merging for Scene Text Localization with Two-Class Detector" 234
- Zantout, Rached \*; AlMustafa, Khaled \*\*; Hamandi, Lama \* (\* Lebanon, \*\* Saudi Arabia): "Hybrid Localization of Saudi License Plates" 240

## **Information and Communication Technologies**

- Costa, Julian Thomas (USA): "Software Interface and the Color White: A Semiotic Analysis" 246
- Kritchanchai, Ekavut; Yuan, Jiann-Shiun (USA): "CMOS Voltage-Controlled Oscillator Resilient Design for Wireless Communication Applications" 249
- Naito, Katsuhiko; Nakanishi, Kenta; Mori, Kazuo; Kobayashi, Hideo (Japan): "Implementation of Maintenance System Based on Bluetooth Low Energy for Hermetic Inline Amplifiers in CATV Networks" 254
- Owolabi, O. T. (Nigeria): "Analysis of Errors in Physics Practical among Students in Nigeria" 260

## **Information Systems, Technologies and Applications**

- Lee, Min Goo; Park, Yong Kuk; Jung, Kyung Kwon; Hwang, Sung Il; Lee, Dong Ki (South Korea): "Forecasting and Analysis for Smart Vending Machine Using Neural Networks" 263
- Melen, Riccardo; Sartori, Fabio; Grazioli, Luca (Italy): "Modeling and Understanding Time-Evolving Scenarios" 267
- Oboni, Franco; Oboni, Cesar (Canada): "Holistic Physical Risk and Crises Prioritization Approaches to Solve Cyber Defense Conundrums" 273
- Simpson, William R. (USA): "Database Access – Application-Driven versus Data-Driven" 279

## **Management Information Systems (MEI 2015)**

- Fernández-Ledesma, Javier D. (Colombia): "A Support System in Software Engineering" 285



Radeerom, Monruthai (Thailand): "Predicting Close Price and Volume Based on Neuro-Fuzzy System for Thai Stock" 291

Woodside, Joseph M.; Amiri, Shahram (USA): "Theoretical Application of Business Decision Support" 297

### **Optical Systems, Technologies and Applications**

Guedes, Andre F. S.; Guedes, Vilmar P.; Tartari, Simone; Souza, Mônica L.; Cunha, Idaulo J. (Brazil): "New Organic Semiconductor Materials Applied in Organic Photovoltaic and Optical Devices" 298

Ramírez, Wagner; Torres, Sergio; Sanhueza, Ignacio; Yáñez, Jorge (Chile): "Hyperspectral Near Infrared Imaging Applied to GSR" 301

Salem, Nema; Al-Saggaf, Abeer; Mustafa, Yara (Saudi Arabia): "Controlling the Light Intensities of 3D Multitude RGB LEDs Cube" 305

### **Special Track on Interdisciplinary Research, Education, and Communication: Summer IDREC 2015**

Cherinka, R.; Prezzama, J. (USA): "A Model for Building a Cyber Security Talent Pipeline" 312

Flammia, Madelyn; Sadri, Houman (USA): "Overcoming Cultural Challenges in Virtual Teamwork: Finding “Third Ways” of Working Together" 318

Valkanov, Vladimir; Stoyanov, Stanimir; Valkanova, Veselina (Bulgaria): "Building a Virtual Education Space" 322

Zaretsky, Esther (Israel): "The Inter-Disciplinary Impact of Computerized Application of Spatial Visualization on Motor and Concentration Skills" 327

### **Symposium on Innovation and Entrepreneurship**

Fabris, Jonas Pedro \*; Camargo, Maria Emilia \*; Russo, Suzana Leitão \*; Zayas-Castro, Jose \*\* (\* Brazil, \*\* USA): "Technological Innovation, R&D Activities and Innovation System Between Organizations" 334

Metzger, Joachim; Terzidis, Orestis; Kraemer, Nicolai (Germany): "Value Delivery Architecture Modeling – A New Approach for Business Modeling" 338

Turriago-Hoyos, Álvaro (Colombia): "Inputs and Outputs of Innovation in the Colombian Services Sector" 344

White, Marta Szabo (USA): "Innovation and Entrepreneurship in Academic Globalization: The Role of LMR" 347

## **Systemics**

- La Red Martínez, David L.; Karanik, Marcelo; Giovannini, Mirtha; Pinto, Noelia (Argentina): "Academic Performance Profiles in Algorithms and Data Structures of UTN - FRRe" 353

## **Applications of Informatics and Cybernetics in Science and Engineering (MEI 2015)**

- Chalfoun, Nader; Youssef, Omar; ElWakil, Engy (USA): "Research, Development, and Optimization of Schematic Design and Environmental Energy Efficiency Systems for the Blackman Residence in Tucson, Arizona, U.S.A." 359

- Silva O., Jorge I.; Hernández H., Hernán; Gomez S., Elibardo J. (Colombia): "Evaluation and Modeling of the Variation of Electromagnetic Field on the Cross Section of a Transmission Line Using Finite Difference Method" 365

## **Human Information Systems**

- Ali, Murad; Shaikh, Zubair A.; Khan, Furqan Muhammad; Baig, Mirza Hassaan; Uddin, Muneeb (Pakistan): "Usability Security for Information Systems Based on Cybernetics" 371

## **Symposium on Health Sciences, Systems and Technologies: HSST 2015**

- Moore, Bridget; Styron, Jennifer; Miller, Kristina (USA): "Modeling Evidence-Based Application: Using Team-Based Learning to Increase Higher Order Thinking in Nursing Research" 376

## **Invited Articles** 382

- Hashimoto, Shigehiro (Japan): "How to Learn Multidisciplinary Ideas (Invited Article)" 384

- Stock, Wolfgang G. (Germany): "Informational Urbanism (Invited Article)" 391

- Hendel, Russell Jay (USA): "Towards a New Cybernetic Interdisciplinary Approach to Pedagogic Challenge (Invited Article)" 399

- Wang, Ya-Huei; Kao, Pan-Fu; Liao, Hung-Chang (Taiwan): "The Use of Narrative Medicine Literature for Interdisciplinary Communication through the Internet Learning System (Invited Article)" 405

- Cherinka, R.; Prezzama, J. (USA): "Innovative Approaches to Building Comprehensive Talent Pipelines: Helping to Grow a Strong and Diverse Professional Workforce (Invited Article)" 410

- Müller, Karl H. (Austria): "The Multiple Faces of Reflexive Research Designs (Invited Article)" 415

- Müller, Karl H. (Austria): "A Silent Revolution in Reflexivity (Invited Article)" 427

- Styron Jr., Ronald A. (USA): "Fostering Innovation in Higher Education through Entrepreneurial Leadership (Invited Article)" 439

Ilunga, Masengo (South Africa): "Instructional Design in Institutions of Higher Learning: A Paradigm Shift Needed (Invited Article)"	444
Redkin, Oleg; Bernikova, Olga (Russian Federation): "Interdisciplinarity and Innovation: The Case of the Arabic Language Teaching and Research (Invited Article)"	446
Singh, Manoj K.; Gupta, M. P.; Madaan, Jitendra (India): "Academic Globalization: A Need for Competitiveness of Academic Institutions (Invited Article)"	451
Callaos, Nagib (USA): "Toward an Integral, Integrative, and Integrated Academy (Invited Article)"	456
Peláez, J. I. *; Casado, A. M. *; Yáñez, E. R. ** (* Spain, ** Ecuador): "An Iterative Group Decision Model Using Majority Operators and AHP (Invited Article)"	465
<b>Authors Index</b>	479



Pages 1-478 are not included in this book preview.

To view the papers, please, click the back button on your browser,  
and then, click on the CD for this conference.



## AUTHORS INDEX

### Volume I

Adilov, Zheksenbek	175	Dauylbaev, Kuandyk	118
Ali, Murad	371	Dolgoplov, Vadim N.	6
AlMustafa, Khaled	240	Dudley, Alfreda	212
Al-Saggaf, Abeer	305	Dusha, Igor	196
Alshanov, Rakhman	175	ElWakil, Engy	359
Amiri, Shahram	297	Erina, Jana	45; 51
Aoki, Risako	216	Erins, Ingars	45; 51
Appalonova, Natalia	27; 57	Ernst, Markus	202
Aramina, Daira	76	Fabian, Jürgen	202
Arhipova, Irina	33	Fabris, Jonas Pedro	334
Ashimov, Abdykappar	175	Faizrakhmanova, Elmira	27; 57
Atygayeva, Zukhra	39	Fernández-Ledesma, Javier D.	285
Baig, Mirza Hassaan	371	Flammia, Madelyn	318
Bakhareva, Nadezhda	22	Froimson, Mikhail	196
Balina, Signe	33	Gaile-Sarkane, Elina	94
Baumgarte, Dace	33	García, M. G.	135
Bazarov, Rustam	27; 57	Giovannini, Mirtha	353
Berezovskiy, Andrey	1	Gomez S., Elibardo J.	365
Bernikova, Olga	446	Goriachkin, Oleg	1
Bistrova, Julija	39	Goriachkin, Oleg V.	6
Borisenkov, Alexei V.	6	Grazioli, Luca	267
Borovskiy, Nikolay	175	Gregor, Derlis	186
Borovskiy, Yuriy	175	Gregor, Raúl	186
Boruchinkin, Alexander	196	Grotheer, Rachel	222
Braman, James	212	Guedes, Andre F. S.	298
Calderón, Jesús A.	180	Guedes, Vilmar P.	298
Callaos, Nagib	456	Guijarro, Alfonso	157
Camargo, Maria Emilia	334	Gupta, M. P.	451
Carreras, Leonardo	186	Ha, Seok-Wun	192
Casado, A. M.	465	Hamandi, Lama	240
Chalfoun, Nader	359	Hashimoto, Shigehiro	384
Cheon, Seung-Hyeon	192	Hendel, Russell Jay	399
Cherinka, R.	312; 410	Hernández H., Hernán	365
Chernukhin, Victor	180	Hernández, Donato	135
Chingaeva, Anna M.	12	Hirose, Yutaka	228
Chivapreecha, Sorawat	169	Hu, Wen-Chen	124
Costa, Julian Thomas	246	Hudenko, Justina	63
Cunha, Idaulo J.	298	Hwang, Sung Il	263
Dashina, Elena	100	Ilunga, Masengo	444

Jung, Kyung Kwon	263	Osman, Ziad	152
Kaabouch, Naima	124	Owolabi, O. T.	260
Kairiša, Ilze	76	Parfenova, Elena	106
Kaliyeva, Gulbakhyt	112	Park, Yong Kuk	263
Kao, Pan-Fu	405	Paulins, Nauris	33
Karanik, Marcelo	353	Pavlakova Docekalova, Marie	69
Khan, Furqan Muhammad	371	Peláez, J. I.	157; 465
Khan, Taufiquar	222	Peredo Valderrama, I.	163
Kobayashi, Hideo	129; 254	Peredo Valderrama, R.	163
Kobayashi, Shingo	228	Pinto, Noelia	353
Kocmanova, Alena	69	Pocs, Remigij	63
Kozlovskis, Konstantins	112	Prezzama, J.	312; 410
Kraemer, Nicolai	338	Radeerom, Monruthai	291
Kritchanchai, Ekavut	249	Ramírez, Wagner	301
La Red Martínez, David L.	353	Redkin, Oleg	446
Lace, Natalja	39; 88	Reinhofer, Stephan	202
Lada, Alexander	16	Rodas, Jorge	186
Lapiņa, Inga	76; 82	Rosha, Angelina	88
Ledesma, Sergio	135	Ruiz Ledesma, E. F.	163
Lee, Dong Ki	263	Ruiz, José	135
Lee, Min Goo	263	Russo, Suzana Leitão	334
Lee, Samuel Sangkon	140	Sadri, Houman	318
Lentjushenkova, Oksana	82	Salem, Nema	305
Liao, Hung-Chang	405	Sanhueza, Ignacio	301
Lin, Yu-Sheng	146	Sartori, Fabio	267
López, Andrés	186	Sato, Tomoaki	169
Lukyanenko, Leonid	196	Shaikh, Zubair A.	371
Madaan, Jitendra	451	Shatreovich, Vladimir	94
Mayorov, Igor	16	Shih, Zen-Chung	146
Melen, Riccardo	267	Shurkina, Elena	106
Metzger, Joachim	338	Silva O., Jorge I.	365
Mikhaylov, Dmitry	196	Simpson, William R.	279
Miller, Kristina	376	Singh, Manoj K.	451
Miyamoto, Ryusuke	216; 228; 234	Skobelev, Petr	16
Moon, Yong-Ho	192	Souza, Mônica L.	298
Moore, Bridget	376	Stock, Wolfgang G.	391
Mori, Kazuo	129; 254	Stoyanov, Stanimir	322
Moungnoul, Phichet	169	Styron, Jennifer	376
Mustafa, Yara	305	Sultanov, Bahyt	175
Naito, Katsuhiro	129; 254	Svirina, Anna	100; 106
Nakanishi, Kenta	254	Sychov, Nikolay	196
Nemecek, Petr	69	Syurkova, Sofia	27; 57
Nikolaev, Boris I.	12	Tafur, Julio C.	180
Oboni, Cesar	273	Takase, Yoshihico	186
Oboni, Franco	273	Tarasov, Veniamin	22
Oki, Takuro	234	Tartari, Simone	298
Olivares Ceja, Jesús Manuel	163	Terzidis, Orestis	338

Titko, Jelena	112; 118
Torres, Sergio	301
Turriago-Hoyos, Álvaro	344
Uddin, Muneeb	371
Ushakov, Yuri	22
Vaccaro, Gustavo	157
Valkanov, Vladimir	322
Valkanova, Veselina	322
Vicario Solórzano, C. M.	163
Wang, Ya-Huei	405
Way, Der-Lor	146
White, Marta Szabo	347
Wongsuwarn, Hataitep	206
Woodside, Joseph M.	297
Yang, Hung-Jen	124
Yáñez, E. R.	465
Yáñez, Jorge	301
Youssef, Omar	359
Yuan, Jiann-Shiun	249
Zabbarova, Alfia	100
Zantout, Rached	152; 240
Zaretsky, Esther	327
Zayas-Castro, Jose	334
Zhengurov, Boris G.	6
Zhukov, Igor	196
Zuykov, Alexander	196