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Number of Papers Included in these Proceedings per Country
 (The country of the first author was the one taken into account for these statistics)

Country	# Papers	%
TOTAL	116	100.00
United States	28	24.14
Japan	12	10.34
Brazil	11	9.48
Latvia	10	8.62
Israel	7	6.03
Czech Republic	5	4.31
Turkey	5	4.31
Taiwan	4	3.45
Greece	3	2.59
Mexico	3	2.59
South Africa	3	2.59
South Korea	3	2.59
Colombia	2	1.72
Croatia	2	1.72
Italy	2	1.72
Russian Federation	2	1.72
Australia	1	0.86
Austria	1	0.86
Bangladesh	1	0.86
Canada	1	0.86
France	1	0.86
Saudi Arabia	1	0.86
Slovakia	1	0.86
Sweden	1	0.86
Switzerland	1	0.86
Thailand	1	0.86
United Arab Emirates	1	0.86
Venezuela	1	0.86
Vietnam	1	0.86
Zambia	1	0.86

Foreword

Our purpose in the 17th World Multi-Conference on Systemics, Cybernetics and Informatics (WMSCI 2013) 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 2013 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 2013 was organized and sponsored by the International Institute of Informatics and Systemics (IIS, 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.

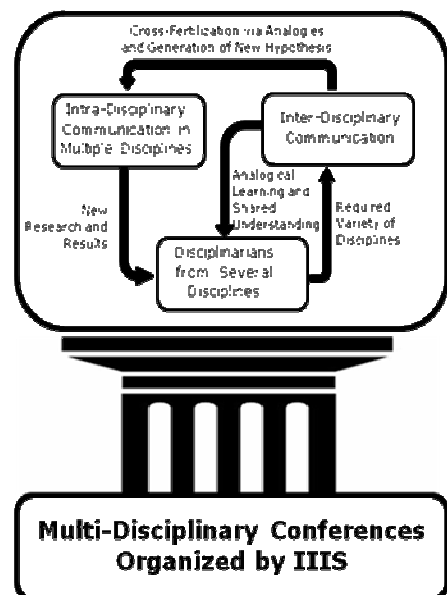


Figure 1

In the specific case of Systemics, Cybernetics and Informatics (SCI), the IIS 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 IIS objectives have directed the organizational efforts of yearly WMSCI/ISAS conferences since 1995.

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

1. the 139 members of the Program Committee from 59 countries (including the PC members of the events organized in its context);
2. the 537 additional reviewers, from 73 countries, for their **double-blind peer reviews**; and
3. the 203 reviewers, from 46 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 1330 reviews made by 740 reviewers (who made at least one review) contributed to the quality achieved in WMSCI 2013. This means an average of 6.33 reviews per submission (210 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 2013, about 210 papers/abstracts were submitted. These pre-conference proceedings include about 116 papers that were accepted for presentation from 30 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 2013 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 2013	210	740	1330	1.80	6.33	116	55.24%
IMSCI 2013	104	437	886	2.03	8.52	53	50.96%
IMETI 2013	78	346	667	1.93	8.55	32	41.03%
CISCI 2013	184	693	1771	2.56	9.63	93	50.54%
TOTAL	576	2216	4654	2.10	8.08	294	51.04%

We also extend our gratitude to the invited sessions and special track organizers, as well as to 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 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 2013, 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 2013 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 conferences.

Workshops, more details (abstracts and short bios) were included in the Conference Program booklet and at <http://www.iiis.org/summer2013plenaryevents/>

Professor Leonid Perlovsky, Harvard University and The Air Force Research Laboratory, USA, two hours plenary workshop, “*Mathematical Equivalence of Evolution and Design*”

Professor Louis H. Kauffman, University of Illinois at Chicago, USA, two hours plenary workshop, “*Circularity, Topology and Cybernetics: Second Order Science*”

Professor T. Grandon Gill, University of South Florida, USA, four hours plenary workshop, “*Interdisciplinary Research, Education, and Communication through Case Studies and Methodologies*”

Plenary Keynote Speakers, more details more details (abstracts and short bios) were included in the Conference Program booklet and at <http://www.iiis.org/summer2013plenaryevents/>

Professor Leonid Perlovsky, Harvard University and The Air Force Research Laboratory, USA, “*Musical Emotions: Cognitive function and evolution: A mathematical-psychological theory and experimental evidence.*”

Professor Louis H. Kauffman, University of Illinois at Chicago, USA, “*Circularity, Topology and Cybernetics: Second Order Science*”

Professor Stuart A. Umpleby, The George Washington University, USA, “*Expansion of Science.*”

Professor Shigehiro Hashimoto, Kogakuin University, Japan, “*An interdisciplinary area of research offers the tool of cross-cultural understanding: cross-cultural student seminar for communication training on biomedical engineering.*”

Professor T. Grandon Gill, University of South Florida, USA, “*Complexity, Cybernetics, and Informing Science: Building a Better Mousetrap.*”

Dr. Jeremy Horne, President-emeritus, Southwest Area Division, American Association for the Advancement of Science (AAAS), USA, “*Complexity, Cybernetics, and Informing Science: Building a Better Mousetrap*”

Dr. Karl Muller, University of Vienna, Austria and Head of The Wiener Institute for Social Science Documentation: WISDOM, Austria, “*Unfolding and Expanding Science with the Help of the New Science of Cybernetics (NSC)*”

Professor Andreas Ninck, Bern University of Applied Sciences, Switzerland, “*Action Learning: Doing in order to think - Thinking in order to do*”

Professor Richard Segall, Arkansas State University, USA, “*Dimensionalities of Computation: from Global Supercomputing to Data, Text and Web Mining*”

Dr. Mark Donald Rahmes, Harris Corporation, USA, “*A Biometric for Neurobiology of Influence with Social Informatics Using Game Theory*”

Dr. Denise K. Comer, Duke University, USA, “*Academic Writing for Inter-Disciplinary Communication*”

Professor Thomas Marlowe, Seton Hall University, USA, “*Systemics and Requirements: A Missing Dimension?*”

Dr. Ronald Styron, University of South Alabama, USA, “*Interdisciplinary Education: A Reflection of the Real World.*”

Dr. Robert Cherinka and Mr. Joseph Prezzama, MITRE Corporation, USA, “*Trending Approaches in Innovation Utilizing Interdisciplinary Methods*”

Dr. Marta White, Georgia State University, USA, “*The Scholarship of Teaching: Inter-Cultural and Inter-disciplinary Communication for Academic Globalization*”

Dr. Kostas Demestichas, National Technical University of Athens, Greece, “*Flexible next generation communication networks*”

Many thanks to Drs. Dale Zinn, Jorge Baralt, Hsing-Wei Chu, Professor Mohammad Siddique, Andrés Tremante, Friedrich Welsch, Thierry Lefevre, José Vicente Carrasquero, Angel Oropeza, and Freddy Malpica for chairing and supporting the organization of conferences and/or special tracks in the context of, or collocated with, WMSCI 2013. We also wish to thank all the authors for the quality of their papers, and the Program Committee members and the additional reviewers for their time and their contributions in the respective reviewing processes.

We extend our gratitude as well to María Sánchez, Juan Manuel Pineda, Leonisol Callaos, Dalia Sánchez, Keyla Guédez, Bebzabeth García, Marcela Briceño, Louis Barnes, Sean Barnes, and Freddy Callaos for their knowledgeable effort in supporting the organizational process producing the hard copy and CD versions of the proceedings, developing and maintaining the software supporting the interactions of the authors with the reviewing process and the Organizing Committee, as well as for their support in the help desk and in the promotional process.

Professor Nagib C. Callaos, Ph. D.

WMSCI 2013 General Chair

www.iis.org/Nagib-Callaos

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