



Highlights

Automatic Control for Sustainable Development

The 15th IFAC symposium on Control, Optimization and Automation in Mining, Mineral and Metal Processing was held in San Diego, California, USA from August 25th to 28th 2013 at the Hyatt Regency Mission Bay Spa & Marina hotel. The general theme of the symposium was the close relationship of sustainability and control, optimization and automation.



Dr. Florian Kongoli in the opening speech reflecting the role of automation in the sustainability





The Plenary Hall

The opening speech was given by Dr. Kongoli who stressed the fact that one of the principles of sustainability is "Doing More with Less" which, in other words, is also one of the goals of control, optimization and automation. He mentioned that by better controlling the industrial processes in mining, mineral and metals processing and replacing the routine part of human labor with the use of machines, automation not only increases productivity and the quality of products beyond what can be achieved by humans, but it also frees space, time and energy for humans to deal with the new, non-routine challenge of developing innovative and more advanced technologies. This magnificent cycle in which established developments are automated and the free resources achieved by this automation are used to develop newer technologies that are subsequently automated, is one of the most successful recipes for the human race towards the goal of sustainable development.

Plenary Session

The plenary session included the following well-known figures in control and automation.

- Prof. R. Russell Rhinehart, President of the American Automatic Control Council, Professor and Amoco Chair Oklahoma State University, USA
- Prof. John A. Meech, P.Eng., Ph.D., Professor of Mining Engineering and Director of CERM3 (The Centre for Environmental Research in Minerals, Metals, and Materials), The University of British Columbia, CANADA
- Prof. R Vasant Kumar, University of Cambridge, United Kingdom
- Prof. Andre Carlos Silva, Professor, Mining Engineering Department, Federal University of Goiás, Catalão Campus, Brazil
- Dr. Luis Sobral, Centre for Mineral Technology CETEM/MCT, Brazil



Prof. R. Russell Rhinehart,
American Automatic Control Council and Oklahoma State University, USA



Prof. John A. Meech, The University of British Columbia, Canada



Prof. Andre Carlos Silva, Professor, Mining Engineering Department, Federal University of
Goiás, Catalão Campus, Brazil



R Vasant Kumar, University of Cambridge, United Kingdom



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Technical Program

The symposium had a strong technical program exploring, as a general theme, the close relationship of sustainability and control, optimization and automation. It covered all aspects of control, optimization and automation in the entire A to Z spectrum of metals and materials starting from mining operations to mineral processing, from non-ferrous metals processing to iron and steel processing, from heat treatment to metal and ceramic coating and power generation. It also specifically covered metal and materials recycling processes, waste treatment and environmental issues.

It was the first time to have a good number of papers about mining. Also for the first time there were papers related to recycling, waste treatment, heat treatment of metals, coating processes, materials characterization and environmental issues.

The symposium included 5 plenary presentations from well-known control and automation figures around the world, covering processing industries (USA), mining (Canada), sensors (UK), mineral processing (Brazil) and bio processing (Brazil) as well as about 85 papers and numerous posters.

The overwhelming response from the international professional community was reflected in about 85 contributions received from authors and co-authors from 37 countries all over the world, which made this symposium a record in its class.

Papers by primary authors represented 37 countries among which the biggest contributors were United States, Canada, Chile, Finland, Brazil and Germany.



Manfred Mauntz , cmc Instruments GmbH, Germany



Dr. Alex Lugovskoy, Ariel Univ., Israel

The papers were presented in **9 sessions according to the topics covered:**

- Heat Treatment of Metals: Principles, Technologies and Industrial Practice
- Iron and Steel: Principles, Technologies and Industrial Practice
- Metal and Ceramic Protective Coating
- Metal Recycling Processes: Principles, Technologies and Industrial Practice
- Mineral Processing (separation, flotation, crushing, grinding, enrichment etc.) : Principles, Technologies and Industrial Practice
- Mining underground and above ground operations: Principles, Technologies and Industrial Practice
- Non-ferrous metal extraction and processing: Principles, Technologies and Industrial Practice
- Power Generation: Principles, Technologies and Industrial Practice
- Waste treatment: Principles, Technologies and Industrial Practice

Fray International Sustainability Award

During the Gala of the symposium, some personalities/entities were honoured with Fray International Sustainability Award and its respective World Crystal Trophy.

In the academic category the Award went to Prof. R. Russell Rhinehart, American Automatic Control Council and Oklahoma State University, USA. The citation reads:

"For Leadership in developing new technologies that contribute to a global sustainable development in the environment, economy and social points of view"



Prof. R. Russell Rhinehart, Oklahoma State University, USA, receiving the Fray International Sustainability Award by Dr. Florian Kongoli

In the corporations category the Award went to OSCHATZ Company, Germany. The citation reads:

"For Leadership in developing and applying new innovative business plans and operation technologies for a sustainable development of the company in the environment, economy and social points of view"



Dr. Hans-Jurgen Schrag and Dr. Jan-Christopher Schrag, OSCHATZ, Germany, receiving the Fray International Sustainability Award by Dr. Florian Kongoli

Social Program

The participants enjoyed several magnificent social functions which included:

Welcoming Reception in the Hotel Pool Area on Sunday evening, which included Chef's served Whole Sage & Garlic Roasted Turkey as well as open bar of alcoholic and non-alcoholic drinks.

The Banquet Gala Dinner held on Monday evening in the Ballroom, with San Diego Artists Fiz and Kerri-Anne, who entertained the audience at the second part of the banquet with their magnificent songs and voices.

Sunset Hot Air Balloon Flights, by California Dreamin', held on Wednesday, evening. The participants experienced spectacular views of the Pacific Ocean and coastal bluffs surrounding Del Mar.



Welcoming Reception in the Hotel Pool Area





Gala Dinner with Artists Fiz and Kerri-Anne



Sunset Hot Air Balloon Flight

Sponsors

The symposium was sponsored by IFAC TC 6.2 (Mining, Mineral and Metal Processing committee) and co-sponsored by IFAC committees (TC 6.1, TC 6.3 TC 6.4 and CC6) as well as by AACC.

Financial sponsorship was provided by FLOGEN Technologies Inc., Oschatz Company and ONRG (Office of Naval Research Global)/US Government.

Other sponsors included 20 Professional Organizations; Media; Academic Institutions and Journals and Publishers. The complete list of financial supporters and organizational sponsors at: <http://www.flogen.org/MMM2013/index.php?gid=31>

The symposium was organized by FLOGEN Star OutreachTM (www.flogen.org), a non-profitable international organization dedicated to bringing to the world-wide society level of acknowledgement of various science, technology and engineering persons or entities for achievements related to global sustainable development.

Publication

The papers presented at the symposium are published in a CD entitled “Automatic Control for Sustainable Development: **IFAC MMM2013: Control, Optimization and Automation in Mining, Mineral and Metal Processing**” edited by Florian Kongoli and published by FLOGEN Stars Outreach, 2013.

The CD is available for sale on line at <http://www.flogen.org/books/index.php?spage=2>.

Attendees' Satisfactory Rate

A poll among the attendees after the symposium showed an overall satisfactory rate of 94%.