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CHEMRAWN XVI CONFERENCE

Consultation Forum

Innovation: the way from pure to applied chemistry

Organized by
CHEMRAWN and COCI Committees of
INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY

FIRST Announcement

PLACE: Ottawa, Canada
DATE: 9 and 12 August 2003

IF YOU ARE INTERESTED IN PARTICIPATING OR ARE JUST INTERESTED IN THE SUBJECT PLEASE COMPLETE THE QUESTIONNAIRE AT THE END OF THIS CIRCULAR.

Background

The CHEMRAWN (CHEMical Research Applied to World Needs) Committee of the International Union of Pure and Applied Chemistry organizes conferences for scientists, chemical industry leaders, and policy-makers, world wide, to explore ways by which chemical resources can meet crucial human needs. Since 1978, 12 Conferences have been held on topics such as organic resources and their conversion, food supplies, advanced materials, contribution of chemistry to health, chemistry of the ocean and atmosphere, environmental analytical chemistry, chemical education, and sustainable development.

The Issue

The next CHEMRAWN conference, to be held at the time of the IUPAC General Assembly, will explore ways to facilitate the journey in the chemical industry from the creative idea, to invention and then to innovative industrial processes and unique products. The results from University research and advanced industrial R&D often do not find their way to commercialization. There are many barriers from internal factors such as inadequate strategy, incomplete R&D effort, lack of technical and evaluation instrumentation, inadequate capital to external factors such as poor market intelligence and a restrictive regulatory environment.

Different barriers appear for large companies as well as small and medium-sized, and regional differences may be great. The CEFIC Barometer of competitiveness –2000 for example indicated large differences between the EU and the USA in R&D expenditures, regulatory requirements for R&D as well as implementation notifications. For other countries having larger scale Government supported R&D efforts, such as India and China, barriers exist between the government laboratories and local industry.

The Focus of the Conference

The chemical industry has an urgent need today to improve profitability and at the same time employ the chemical sciences to develop more environmentally friendly processes and products**.** These needs can possibly be met by more effective innovation processes, using the best tools and approaches for R&D breakthroughs.

It is timely therefore for a CHEMRAWN conference to explore the best tools and approaches used to bring pure chemistry - the creative idea to applied chemistry-commercialization in the marketplace.

Who should be involved in such an exploration?

The Conference should involve: the companies providing R&D organizations with the instrumentation for process development; the firms providing the technical and market intelligence for strategy development; the companies providing the modern software for chemistry and engineering purposes; the producers of pilot installations in a standard way combining the unit processes (multipurpose batch plants), companies applying micro- pilot plants in the process development in particular those supplying the micro-instrumentation; and the many users of such hardware and software in the chemical industry.

To examine these innovative processes, the conference topics could include creativity and the sources of potential inventions, the economic environment (market and regulatory); better ways to order and investigate process engineering of the physical-chemical concepts, pilot testing of the unit processes; and the impact of the regulatory evaluation systems in companies and governments.

One forum could not cover all these aspects of innovative processes from idea generation to market development. Many other conferences, books, and article have examined the theoretical, managerial, and human relations aspects of innovation. These are not subjects for this Conference.

For CHEMRAWN XVI the focus will be on today's most advanced, possibly radical, and organized steps in the innovative process – the tools and approaches either helping or used by researchers, and some of the barriers encountered in their use. Presentations will be by those with the know-how of the tools and approaches, and by those with the experience in their use.

CONFERENCE ORGANIZATION AND TOPICS

The Conference is divided into three parts:

1. A session on August 9 at which leading companies providing the software and hardware for transforming an idea and invention into an innovative manufacturing process or product will present their know-how supported by the examples of successful implementation. Users of the software and hardware from academia and industry will present their experience, results and lessons learned. The conference will not discuss the theoretical aspects of the innovative process, but concentrate on the practical exemplification and assessment of the usefulness and efficiency of given instrumentation, equipment, and research approaches. Participants in IUPAC's Congress and General Assembly are invited as contributors or participants to this special session.

2. The joint meeting of the CHEMRAWN and COCI Committees where committee members will present their experiences (or country position emerging from statistics and practice) in innovative processes. Selected contributors will also be invited to attend this meeting.

3. The proceedings from the conference and other papers from those interested in the conference will be put up for open discussion on the IUPAC/CHEMRAWN web site for several months,

after which the final report in form of Conference Proceedings will be published. The proceedings will be disseminated with conclusions and recommendations world wide among the scientific institutions, academia and industry.

The Conference will be organized around the following topics:

Panel I: Software support of the transformation of the invention into innovative products or processes

Customer identification; familiar or new market?
Research approaches on new unit processes
Computerized methodology/instruments to produce basic engineering for pilot or full scale manufacturing.
Instruments for evaluation of efficient use of raw materials, energy, labor.
Economic evaluations.

Pre-assessment and computerized process design is important in any successful innovative process. The selection of the strategic direction of the R&D process depends strongly on the availability of the detailed intelligence on existing processes and their economics. Therefore the methodology of process evaluation developed by several companies and their data banks are useful instrument in avoiding the selection of a non-competitive process. The computerized systems, the thermodynamic modeling as well as the engineering design programs are advanced tools used to evaluate the process in early stages of research and development.

Information technology can accelerate the innovative process from researching the innovative idea to the industrial practice. The commercially available software could be presented for specific applications.

Panel II: Hardware support for the transformation of the invention into innovative product or process

Pilot plant: instruments in the petrochemical and large scale industries
Process/product development
Multipurpose batch plants; tools of innovative product/process development
Technology collaboration- joint efforts of the academia and industry
Testing and marketing instruments in the life sciences
Evaluation methods; assessment of the probability of the success

The role of pre-assembled glass (special materials) unit processes and full installations (multipurpose batch plants) as well as micro- pilot plants can be applied world wide to ensure successful process development.

The historically known problem of scale-up of laboratory results, allowing only limited increase of scale, has caused delays in passing from the first results of the process to the final installation. Modern approaches demonstrate the possibility of omitting multi-step scale-up by using adequately pre-assembled unit operations in various combinations. Use of micro-pilot plants with extremely precise instrumentation now allows researchers to complete the detailed mass and energy balances necessary to produce the basic engineering data for large scale installations.

The presentation of the producers of the pilot plants as well as the micro-instrumentation will show how with very limited expenditures one can develop reliable data for decision-making

Panel III: Regulatory support/barriers for the transformation of inventions into innovative product/process

Internal company regulatory instruments of the evaluation and approval for investment
External (government) regulatory approaches and approval procedures

The regulatory and social-economic environment can promote or hinder the innovation process. First important regulatory issue is the internal company evaluation procedures at different steps of the innovative process to decide on further development or terminating the project. The second regulatory issue is legal regulatory environment. Region to region and country to country differences are observed. The regulatory procedures if excessive not only hinder present activities but also create the environment that diminish interest of any future ambitious program. Therefore the wrong and over used regulatory processes can potentially influence a whole generation of researchers. The investigation of the bureaucratic systems and possible modifications may be a fruitful topic.

Registration and participation

Those interested in or wishing to participate in the conference should submit the registration form (see below) and a 400 word abstract (if a talk is anticipated) before May 31, 2003 to

Dr Jerzy Kopytowski Industrial Chemistry Research Institute Fax (4822) 7578793 or e-mail anna.czykwin@ichp.pl. with a copy to fabienne@iupac.org.

The abstracts will be printed as submitted in the Conference preprints distributed at the beginning of conference. Copies of full paper with diskette in Word should be given to the Forum Secretariat at the Registration Desk the day of the conference. All drawings and charts should be attached at the end of the papers. The Organizing Committee will prepare the report containing the papers as well the discussion results presented by the topic panel chairman of the Conference.
No proof-reading by the editor of the proceedings is foreseen, therefore, authors are responsible for the correct version of the text of their papers. The proceedings of the Conference will be issued three months after conclusion of the Conference and will be available for discussion on the CHEMRAWN web site. http://www.iupac.org/standing/chemrawn.html

There is no registration fee or charge for attending CHEMRAWN XIV; limited financial support (travel and lodging) is available only for a few selected participants.

Information on travel, accommodations, and registration for the Congress and other General Assembly events is found at:

http://www.iupac.org/symposia/conferences/ga03/info-booklet.html

Registration to the Forum is also possible on the days of the conference.

LOCATION AND TIMETABLE

The Forum will take place on August 9, 2003, during the IUPAC General Assembly in Ottawa on the campus of the University. A follow-up meeting for the CHEMRAWN and COCI members will take on August 12, 2003. Details of venue will be given to all registered participants and available at the CHEMRAWN website.

TENTATIVE AGENDA

August 9, 2003

9:00 – 9:15 Welcome from the CHEMRAWN and COCI committees
9:15 – 10:30 Panel I
Invited speaker
Panelists
10:30 – 11:00 Discussion
11:00 – 11:15 Coffee break
11:15 – 12:15 Panel II
Invited speaker
Panelists
12:15 – 12:45 Discussion
12:45 – 14:00 Lunch break
14:00 – 15:00 Panel III
Invited speaker
Panelists
15:00 – 15:30 Discussion
15:30 – 17:00 Presentation of conclusions and recommendations by panel chairmen
General discussion

August 12, 2003 – *follow-up session primarily for CHEMRAWN and COCI members*

9:00 – 12:00 Introductory paper
Presentations of country/company papers prepared by CHEMRAWN and COCI Committees members followed by discussion
12:00 – 13:00 Lunch
13:00 – 17:00 Continuation of the presentation of papers and meeting of the Future Actions Committee with designated members from CHEMRAWN and COCI

Additional information may be obtained from members of the organizing committee:

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CHEMRAWN XVI
Registration/Indication of Interest
Innovation — from pure to applied chemistry

To be submitted by **31 May 2003** to JA Kopytowski
E-mail <anna.Czykwin@ichp.pl> or Fax: +048 22 7578793

1. Name (last, first)

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2. Address, telephone, fax, e-mail:

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3. Company/University affiliation

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4. I wish to participate in the CHEMRAWN CONSULTING FORUM in
   - Panel I [ ], Panel II [ ], Panel III [ ]
   - as contributor and panel member [ ] as participant [ ]
   - [ ] I have attached or will submit a 400 word abstract of my presentation

   - [ ] I cannot be at the Conference but I am submitting a paper for discussion at or following the Conference

5. Title of the proposed contribution (10 minutes presentation)

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6. I will also participate in the IUPAC Congress [ ] Session:
   date [ ] hour [ ]
   or other IUPAC activities in Ottawa General Assembly: