

[Newsletters](#)

MANCEF Quarterly Newsletter

Third Quarter 2004, Vol. 2

July 2004

Executive Board

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[Kees Eijkel](#)

University of Twente
keijkel@mancef.org

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University of South Florida
csteele@mancef.org

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dtolfree@mancef.org

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IIRD - Victoria
jniall@mancef.org

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[Bob Warrington](#)

Michigan Technological University
rwarrington@mancef.org

Founding Past President

[Steve Walsh](#)

University of New Mexico
swalsh@mancef.org

President's Message from Kees Eijkel

Recently, the board has been polishing MANCEF's mission, strategy, and structure. This process is ongoing, but some of the results are being implemented over the coming months. With this first contribution to our newsletter as MANCEF's President, I would like to introduce myself, [Dr. Kees Eijkel](#). In the next two years I will contribute to MANCEF and its goals, joining the ranks of former Presidents [Bob Warrington](#), [Steve Walsh](#) and [Roger Grace](#). Being the first European President, I will try to consolidate and improve our global presence, a crucial part of our mission. But before any other points, I would like to turn the spotlight to Roger Grace, now past president of the foundation.



The office of the presidency of MANCEF has changed hands as part of the organization's development path from it's early "start-up" state in 2000 to a more rationalized entity and operating structure today. A number of crucial activities began or were re-invigorated under Roger's leadership: strategic planning, strategic alliances, marketing, and communications. The organization gained visibility and professionalism, much of the drive related to the presidency. Under Roger's presidency, MANCEF made tremendous progress moving the organization to formalize our processes and procedures and driving the process to develop the long-term, strategic view of the foundation's mission and structure. We thank Roger for his tireless support, thinking, and initiatives on behalf of the foundation. Roger, I think I speak for the MANCEF membership when I say: thanks for all you have contributed to move the foundation forward.

As for myself, I have attended all COMS conferences and was one of the first MANCEF members, and I have been deeply involved in commercialization for almost 20 years. I have been involved in various

Treasurer

[Bill Higdon](#)

bhigdon@mancef.org

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Bookham Technology

jwylde@mancef.org

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Joe Brown

Suss Microtec

jbrown@mancef.org

Member

[Job Elders](#)

C2V

jelders@mancef.org

Executive Director

Scott Bryant

Intl. Tech. & Trade Ventures

sbryant@mancef.org

functions at the University of Twente. (Currently, I am the Technical-Commercial Director of [MESA+](#), a 450 member micro/nano institute at the university. This means I couple all internal operations and labs to commercialization. Over the past 15 years, some 26 firms have settled around MESA+ or have spun out of our research. I have been hands-on involved with many of them. I am also CEO of MTF Ltd, a small company that arranges offices and labs for on-campus economic activities in our field. I am also a co-founder and secretary/treasurer of MINACNed, the Dutch affiliate of IVAM and secretary/treasurer of two more foundations for Micro/Nano support and Nanotech education. I am also deeply involved in the Dutch Nanotech Initiative NanoNed, which is coordinated by our institute. With all this, I hope I can bring value to MANCEF and look forward to working with all of you. MANCEF is a vibrant organization which focuses on things that matter to its members. It's great to be part of that.

MANCEF is the global community of organizations and persons that have an interest in commercialization of miniaturization technologies. We bring together expertise, interests, solutions, lessons learned, network, and experience that matters to the commercialization churn. Together, we engage in discussions and educational, knowledge sharing activities that help us further our success in and understanding of commercialization. In one line: **MANCEF is the global Micro/Nano Commercialization community.**

For now, we are coordinating a large number of activities: COMS2004-2006, the Micromachine Summit 2005, regional workshops, new Roadmap chapters, new educational activities, affiliations, elections of a global General Advisory Council, membership, and many other things.

You can read about the current activities below, but three items deserve extra attention:

COMS2004: Note the pre-conference ASME Reliability & Manufacturability short course. A great team is currently putting together what promises to become the largest and best COMS conference ever.

COMS2006 Venue Proposals: The 2006 conference will be held in the Americas. Proposals for sites have already started. The deadline for venue proposal submission is **15 August 2004.**

GAC Elections: MANCEF's members will directly elect 15 members to the new General Advisory Council. Confidential, online voting for the new Councillors will occur between **6-13 August 2004.** Be looking for upcoming announcements of the nomination, candidacy and polling. Exercise your member right to vote!

A special thanks to the people who put tireless effort into this: the board members, our executive director and the committee chairs and members. Looking forward to working with all of you in the coming years.

Kees Eijkel

Pre-COMS2004 Event:

ASME Reliability and Manufacturability MEMS Course



This one day pre-COMS short course will be held Sunday 29 August from 10 am to 4 pm.

MANCEF is proud to announce a very special offer for MANCEF members attending the pre-COMS event. First, MANCEF members receive the ASME member rate on this event. Second, the course includes a CD ROM of the FULL 3-day Reliability course and print supplement of the 1-day course covering Reliability Design, Manufacturability, and Commercialization.

Instructor: Mark da Silva, Director of MEMS/MST Technology, Coventor, Inc.

Course Description: In recent years, the problem of reliability of MEMS has become the overriding priority for industry focused on delivering low cost products to the market in the shortest possible time. The course will focus on the reliability and manufacturability of issue for MEMS enabled products. The primary topics and sub-topics addressed include, process development and characterization, material property characterization, design methodologies, design for reliability (DFR) and design for manufacturability (DFM).

Who should attend: This course is designed "by industry for industry". Design Engineers, Process Engineers, Product Managers, Engineering Managers, and Technology Directors within the MEMS industry who are responsible for part or all aspects of product development would benefit from this course.

Background: Attendees should have a basic familiarity with MEMS technology and device design. A working knowledge of common MEMS process technologies specifically surface and bulk micromachining, SOI, LIGA, etc. would be ideal. Additionally, knowledge of MEMS analysis (electromechanics, RF etc.) and design techniques (coupled domain simulations, macromodeling, etc.) and tools would be beneficial.

Short Course Schedule:

10:00-10:30am	Introduction to MEMS Reliability and Manufacturability
10:30-12:00 pm	Reliability - Root Causes & Failure Modes
12:00-1:00 pm	Lunch Break
1:00-2:00 pm	DFR/DFM CAD Methodology
2:00-3:00 pm	Process Design, Characterization & Planning

For registration information visit <http://asme.org/education/techsem/coms/course.html>

Coventor/MANCEF MEMS Design Scholarship Deadline

[Current graduate students may apply for the scholarship](#) in four categories: Bio MEMS, RF MEMS, Sensors/ Actuators, and Other Novel Designs. Proposal deadline is **30 July 2004**.

Four winners to receive 1-year MEMS design software license and publication of research.

Contact **Robert Giasolli**, rgiasolli@mancef.org for more information.

[COMS 2004](#)

29 August - 2 September, 2004

Edmonton, Alberta, Canada COMS 2004

9th Annual International Commercialization of Micro and Nano Systems Conference Sets Technical Program

Edmonton, Alberta, Canada: To capitalize on the growing multi-billion dollar global Micro and Nano technologies market, charting the course from research to commercial success will be the focus of the technical program for the 9th Annual International Commercialization of Micro and Nano Systems Conference (COMS 2004) on **29 Aug. – 2 Sept. 2004** at the Shaw Conference Centre in downtown Edmonton, Alberta, Canada. A record 400 local, national and international delegates are expected to attend the three and half day program that will feature over 100 leading industry speakers and panelists. Attendees will participate in over 20 business-oriented plenary and breakout sessions, lively panel discussions and workshops, as well as many networking opportunities, all geared to helping the industry seize market opportunities and overcome the barriers to successful commercialization.

Program Themes

Sunday, 29 Aug.	Welcome Reception
Monday, 30 Aug.	The State of the Industry: Views from Around the World
Tuesday, 31 Aug.	The Business of Small: Making a Difference
Wednesday, 1 Sept.	The State of the Science and Technology (and Art): Making it Work
Thursday, 2 Sept.	The Future: Challenges for Education and Training

Session topics include:

- Standards/packaging/reliability
- Convergence and integration
- Building successful MNT clusters
- Emerging bionano, automotive, energy and aerospace applications
- A focus on investment and capitalization, e.g., "Capitalizing Nano: learning from the MEMS experience."

Other highlights include an ASME pre- conference "Reliability & Manufacturability of MEMS" short course on the day of Aug. 29, a Vendors Showcase and Reception on the afternoon of Aug. 30 and the annual Award Dinner on the evening of Aug. 31.

The conference kicks off on the evening of Aug. 29 with a "Welcome Reception" at the historic Fairmont Hotel McDonald, which overlooks the beautiful North Saskatchewan River Valley in downtown Edmonton.

COMS 2004 is pleased to have confirmed a high-impact roster of presenters, including:

- Thomas A. Cellucci, PhD, President and COO, Zyvex Corporation
- Henk van Houten, PhD, Senior Vice- president, Philips Research
- Alexander W. Wong, PhD, Partner, Apax Partners
- John 'Spud' Bradley, PhD, National Science Foundation (USA)
- Arthur J. Carty, PhD, National Science Advisor to the Prime Minister of Canada
- Meyya Meyyappan, PhD, Director of the Center for Nanotechnology and Senior Scientist, NASA Ames Research Centre

Sponsors (as of 2 July 2004)

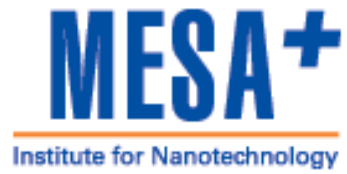
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For More Information

Information on [COMS 2004](#)

COMS 2004 Exhibition

Great Facilities, Favorable Exchange Rates

For COMS 2004, we expect to host over 400 international business leaders, small tech users and suppliers, venture capitalists, and technology managers. Over 60 exhibits can be accommodated in the State of the art Shaw Conference Center in downtown Edmonton, Alberta, Canada with complete exhibition facilities including High Speed Internet Access, accessible and open exhibit hall, and close proximity to the sessional talks and lunch facilities. Because the conference will be held in Canada, which has a favorable exchange rate, this will be one of the lowest cost exhibits in the COMS series. Booths are selling fast, order early!

For more information on exhibiting, please contact:

Joe Brown, Co-Chair Exhibition Committee, +1 860 767 7891, jbrown@mancef.org

Leigh Hill, Conference Manager, +1 780 917 7642, lhill@edmonton.com

COMS 2006

Request for Venue Proposals

The 2006 conference will be held in the Americas. Proposals for sites have already started.

15 August 2004 COMS 2006 Proposals due

Selection Criteria

Site must be available for four days between **28 August - 1 September 2006** or between **7 - 11 September 2006**. All conference proposals must include:

- A resort-like or interesting location
- A facility within 50 km that can demonstrate the successful commercialization of micro/nano technology
- Adequate conference hall facilities
- Adequate hotel and room facilities
- Adequate airport/train facilities
- Adequate exhibition facilities
- Interesting side trips
- Proximity to a golf course
- Significant industrial sponsorship, subject to contract
- Each location must pay a licensing fee for the conference, subject to contract
- MANCEF receives a membership fee from each attendee

Note: These criteria are intended as a guide only and will be described in a contract with successful bids.

For more information, contact:

Carol Steele

Conferences and Workshops Committee Chair

csteele@mancef.org

Telephone: (727) 553-3975

Fax: (727) 553-3967

Advertisement

Commercialization of Micro and Nano Systems (COMS) Conference Proceedings Now Available on Compact Disc!

COMS 2003 provides you with the resources to compete, to collaborate, to find customers, and to further your commercialization process. If you didn't make it to COMS 2003, you can get a hard copy of the proceedings. MANCEF members pay no shipping and handling. Compact disc versions are also now available at no charge to COMS 2003 Participants.

Order your copy of the COMS 2003 or COMS 2002 proceedings today at: <http://mancef.org/documents/order.pdf>.



Member News

General Advisory Council Elections

Nominations will be accepted for 15 Council positions (5 from each of the global Vice-Presidency regions) until 1 August 2004. Voting will commence between **6-13 August 2004**. Voting announcement information will be sent to current members via separate email.

Non-members and members of MANCEF may be nominated for candidacy only by another current MANCEF member. Brief biographies of less than 500 words explaining your qualifications and candidacy, a headshot photo, and a completed nomination form must be submitted by the 1 August deadline.

- [Nomination form](#) (.pdf)

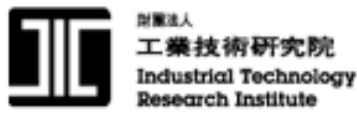
For more information, please contact **Scott Bryant** at sbryant@mancef.org or call +1.505.255.1826.

MANCEF Meetings

- Tuesday 31 Aug 2004 7:30 - 8:30 am - **MANCEF annual membership meeting** (light continental breakfast to be served)
- Wednesday 1 Sept 2004 5:00 - 5:30 pm - **MANCEF General Advisory Council and Board of Directors Meeting**

New MANCEF Members

MANCEF would like to welcome our newest members, whether individual, corporate, academic, or government. To renew your membership, please see: www.mancef.org/members.htm



Current MANCEF Members:



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2nd Edition of International MEMS/ MST/ and Nano Roadmap Available September 2004!

The 2nd edition of the Roadmap will be available for sale at COMS2004.

The 2004 edition roadmap provides the state of technology/ industry overview.

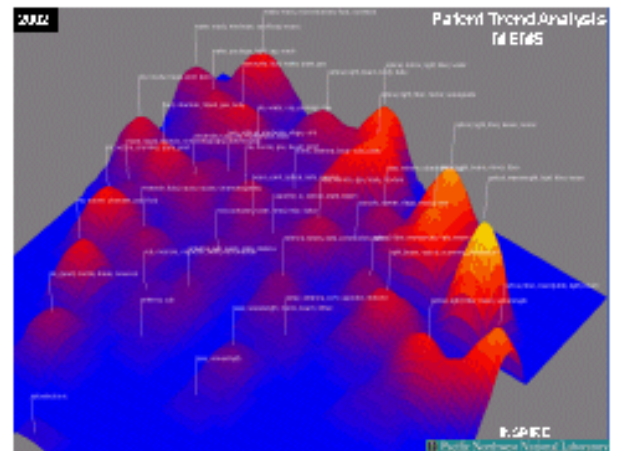
Four new chapters are offered:

- **Nanotechnology** (explores the nuances of Nanosystems, nano enabled industry segments)
- **Patents** (contains a year by year mapping of Microsystems intellectual property)
- **Manufacturing Infrastructure** (provide a basic Microsystems front end manufacturing toolset for the applications in the coming decade)
- **RF MEMS** (explores RFMEMS including new opportunities, intellectual property advances, technological process and process advances)

Two chapter updates are also included: **Foundries** and **Packaging & Assembly**.

MANCEF's second edition roadmap will be available in digital format. Advance purchases of the MANCEF Micro-Nano Roadmap can be made here: mancef.org/roadmap.htm.

MANCEF members receive a \$200 discount.



2005 MicroMachine Summit Announcement

The 11th MicroMachine Summit will be held **1 – 4 May 2005 in Dallas, Texas**, the first MicroMachine Summit ever to be held in the United States.



Organizers

National Institute of Standards and Technology, Zyvex Corp., and MANCEF

Venue

[Renaissance Dallas Richardson Hotel](#)

Venue Theme

Big 'D': Wrangling Small Tech to Market

Contact Information

Scott Bryant, sbryant@mancef.org, +1.505.255.1826

MANCEF interviews enablingMNT

Crossing the Chasm: Micro-Nano Consultancy

Real deals with real money happen during each COMS conference. In the past, this meant start-ups and venture capital. While this is still the case, it is also noteworthy to see the longer term impact of community and entrepreneurship. The foundation finally has a chance to highlight one of the long-term spin-outs of the COMS conference series, an extrapreneurship effect of the MANCEF community and the COMS series. Henne and Patric have owned previous careers in the Micro/Nano industry and have combined efforts with Drs. El-Fatatry and Paschalidouto to build a premier Micro-Nano consultancy. They share some important industry insights here.

MANCEF: What was the interest of the enablingMNT team to be actively involved in MANCEF?

Patric: The COMS conference with its unique combination of relaxing atmosphere and business climate has always been the key event for all out team to learn about new developments, meet peers and customers, and get into new contracts. Henne and I have both been involved in the MANCEF roadmap and we are going to



Patric Salomon, 4M2C, GmbH,
Germany

support the current updates and new chapters. From our closer cooperation with MANCEF, we expect to get new contacts and make the key industries worldwide aware of what we can offer to support their businesses. Educational strategies and consulting to governments on funding/exploitation strategies are additional fields of our consultancy, where an affiliation with MANCEF will be of benefit.

MANCEF: What makes enablingMNT unique as a consultancy organization?

Patric: We realized that Micro and Nano Technology (MNT) is a multinational and multi-technology phenomenon. Consultancy in the area of MNT always needs to take international developments into account – knowing one discipline of MNT or the market within one country is not enough to supply customer value. The enablingMNT group has been launched in 2003. Our main strengths are our flexible approach to consultancy and the unique capabilities of our team members. In addition to their location in three European countries, the members of our team are active in the main international Micro and Nanotechnology organizations. On the capability site, Ayman El-Fataty, our third partner, covers the systems engineering area, Henne focuses on the manufacturing and equipment side, Lia takes care for the systematic market research, and I am responsible for public policies/funding and marketing.

MANCEF: Some industry thoughts. There are still complaints that it is difficult to find the high quality technology providers who can deliver these low volumes at affordable prices. What is your view on that matter?

Henne: We can distinguish two routes often followed: The first is the easiest one, customers more and more trust the companies working in the periphery of universities, making use of university equipment. The other is a more difficult one, namely to adapt the design in such a way that it fits better in high volume electronic manufacturing. An area, incidentally, that is slowly becoming more flexible and willing to introduce other technologies. The introduction and rising popularity of adapted standard package concepts is a good example of that.



Henne van Heeren, Enabling M3, The Netherlands

MANCEF: You have been looking into the key areas of the MST/ MEMS supply chain and market. Where are the problem areas and who can help to overcome the barriers?

Henne: If you had asked me this a year ago, I would have answered "test & measurement" and two years ago "packaging & assembly". But the gaps towards commercial services in both areas are rapidly decreasing. There is, however, still a lot to be done regarding reliability. The understanding of reliability problems and the lack of publicly available information will delay commercialization, especially in demanding applications. Also the design tools and the "design for manufacture methodology" is still a topic that needs further development. Another unsolved problem in MST/MEMS is the provision of high quality low volume production. Universities are providing this service, but for faster turnaround of a product concept, flexible (commercial) service providers are needed. Governments can help by supporting the necessary infrastructure.

MANCEF: You launched the enablingMNT Industry Review series before COMS last year. Aren't there enough market reports already available?

Patric: The enablingMNT Reviews include some market information, but mainly focus on the MNT product lifecycle; from concept through to production. They describe how a selected topic is linked into the supply chain from product idea, technology development, engineering, prototyping, manufacturing, packaging and

test, into volume production. They analyze the critical issues encountered during the creation process of MNT-based products and provide guidance with regards to the approaches taken to overcome barriers and challenges. All reviews include a comprehensive listing of services offered in the field. The emphasis is on the provision and availability of fully commercial services, infrastructure, and suppliers considered essential for the realization of MNT-based products – this is what our customers tell us they have been looking for.

Available enablingMNT Reviews

- Design and Engineering Companies for MST/MEMS
- Foundries for MST/MEMS
- Packaging and Assembly Services for MST/MEMS
- Front-End Manufacturing Equipment Suppliers for MST/MEMS
- Back-End Manufacturing Equipment Suppliers for MST/MEMS
- Equipment Suppliers for Nanofabrication
- Coming soon: Materials Suppliers, MST/MEMS Test Equipment, MNT Service Suppliers

enablingMNT Contact Information

Henne van Heeren: henne@enablingmnt.com

Patric Salomon: Patric@enablingmnt.com

Web: www.enablingMNT.com



Promoted Events:

The Economic and Social Impact of Micro & Nanotechnology Daresbury Laboratory, Thursday 22 July 2004

A topical one-day conference and forum, raising awareness for a wider audience on how Small Technologies (Micro-NanoTech) are:

- Enabling new materials, products and services that will shape the way we live and work in the future
- Capable of revitalising industry-leading to economic regeneration; impacting employment, education, health, medicine, security, the environment, leisure, lifestyle, wealth-creation and quality of life
- Creating unprecedented global markets for new products currently valued at over £50 Billion becoming the unparalleled drivers of economic and social change

Expert speakers will address the impact these technologies will increasingly have, given the significant investments in R&D, now being made by both the public and private sectors worldwide. For market success the scale of these impacts will require business commercialization strategies, and hence governmental economic strategies, to court general public support at an earlier stage of technology development. This conference and forum seeks to open this process of consultation.

Contact: **David Tolfree**, Tel: 01925 264347 email: d.tolfree@dl.ac.uk

High-Desert MEMS Regional Workshop

October 12-13, 2004

Albuquerque, NM USA

MANCEF and the Technical Vocational Institute – Albuquerque are pleased to announce the First Inaugural - High Desert Regional MEMS Workshop. This two day event will be hosted by the Workforce Training Center, 5600 Eagle Rock Ave NE, Albuquerque, NM.



We encourage all MEMS educators, developers, and anyone interested in the economic potential of this versatile technology to attend the event. Attendance and participation is not limited to the High Desert region – everyone is invited to register. Don't miss this unique opportunity! We encourage those from New Mexico, surrounding U.S. states (AZ, CO, TX, UT) and Mexican border states to be a participant.

Early sponsors behind the conference include Sandia National Laboratories, New Mexico Economic Development Department, and NextGen Economic Development.

The workshop programs will focus on a wide spectrum of topics: MEMS Education, Workforce Training, Economic Development / Impact, and Micro-Nano Commercialization.

Special discussions include New Mexico national and bi-national labs, border regions facilities, the national center of excellence for Microsystems Education, international education/workforce models, tax incentive strategies, venture capital, and New Mexico commercialization efforts. There will be a number of exhibitors on hand - plus great opportunities for networking and peer to peer development. An important event for meeting the regional Micro-Nano players.

Basic Workshop information can be found at: www.mancef.org/highdesert.htm. Program information will be distributed via the website and regional mailings shortly.

To register, please contact TVI Workforce Training Center: 505-224-5200 or the MANCEF office: 505-255-1826.

See www.mancef.org/events.htm for more information on MANCEF related events.

Quality Events:

MINAPIM 2004

September 15-18, 2004
SUFRAMA Convention Center
Manaus, Brazil

The 1st [International Seminar on Micro and Nano Technology](#) (MINAPIM 2004) will be held 15-18 September 2004 in Manaus, Brazil. Gateway to the Amazon Rain Forest, flowers and animal's paradise, a wonderful tourist destination provides a great environment for holding conferences and meetings.



The event is supported by a wide variety of semiconductor research institutes and industry organizations and is designed to enhance global co-operation in semiconductor research and development, including the new

Brazilian initiatives to develop a local cluster. The MINAPIM 2004 Seminar is organized by the Superintendence of the Free Trade Zone of Manaus- SUFRAMA a branch of the Brazilian Ministry of Development Industry and Foreign Trade, into the 2nd International Amazon Fair- FIAM 2004.

The Brazilian microelectronic activities include also the events done by the Brazilian Microelectronics Society SBC, annually there is a meeting. The SBMicro symposium is dedicated to fabrication and modeling of microsystems, integrated circuits and devices. The goal of the symposium is to bring together researchers in the areas of processing, materials, characterization, modeling and TCAD of integrated circuits and MEMS.

Contact Hernan Valenzuela at: +55.92.635.2304 or hernan@suframa.gov.br

<http://www.suframa.gov.br/minapim/generalinfo.cfm>

ComPaMED 2004 13th International Trade Fair

24 – 26 November 2004

Düsseldorf Trade Fair Centre

Messeplatz, Düsseldorf, Germany

Components, Parts and Raw Materials for Medical Manufacturing

[ComPAMED 2004](#), the trade fair of the medical technology supply industry, will be hosted for the thirteenth time in conjunction with MEDICA, the world's largest medical trade fair. Its theme is microsystems technology and 'high-tech en miniature.'

This year the majority of the anticipated 3,900 exhibitors are clients of ComPaMED exhibitors and potential users of high-tech applications of microsystems technology. Long-time supporter of the COMS series, IVAM is organising the forum and special show at ComPaMED. In cooperation with the NC-Gesellschaft – Employing New Technologies - a main topic of the lecture series at ComPaMED 2004 will be dedicated to Rapid Prototyping technologies.

Individual exhibitors may register directly with Messe Dusseldorf to participate through IVAM in the forum.

For more information on ComPaMED 2004 contact Dr. Uwe Kleinkes: Tel.: +49(0)231/97 42 148, E-mail: uk@ivam.de

CMC: Accelerating Competitiveness through Microsystems

Highlight: Canadian cluster development model

[Canadian Microelectronics Corporation](#), a sponsor of COMS 2004, has recently completed a Strategic Plan addressing the importance of microsystems for Canada's economic and social future, and the role of CMC in stimulating microsystems research, technology development and commercialization through products, services and alliances that will benefit a wide variety of partners and, in fact, all Canadians.



The following are excerpts from the document [CMC-Accelerating Canadian Competitiveness through Microsystems: Strategic Plan 2005-2010](#)

CMC at a Glance:

As a federally incorporated non-profit corporation, CMC provides 2,300 microsystems researchers at 41 universities and colleges across Canada with industry-calibre design resources, access to state-of-the-art manufacturing technologies, and support services.

Launched in 1984 through a university, industry and Natural Sciences and Engineering Research Council of Canada (NSERC) initiative, CMC has won international acclaim for its achievements in developing Canada's capabilities in microelectronics. Recognizing the need to build competence in microsystems, CMC now offers products and services that include microelectronics, micromechanics (usually implemented in the form of microelectromechanical systems or MEMS), microfluidics, photonics/optoelectronics and embedded software.

CMC's core competencies are in:

- Developing and operating a national research infrastructure program that increases Canada's productivity in microsystems research and technology development
- Building partnerships and implementing cost-reduction strategies that greatly increase the magnitude of resources available to clients
- Complementing and increasing the effectiveness of Canadian federal and provincial programs that support microsystems research and development
- Accelerating the professional maturity and immediate productivity of graduate students

These core competencies differentiate CMC from other national and international organizations and underpin a new and accelerated approach to microsystems research and technology development and increased commercialization that will garner greater economic and social benefit for Canadians.

CMC: The Power of Partnerships

CMC plays a pivotal role in Canada's innovation landscape by facilitating national and international alliances – between government, industry and universities -- that add significant value to Canada's microsystems research capacity.

Working together with an array of industrial partners such as Gennum Corporation, PMC-Sierra, DALSA Semiconductor and Micralyne, CMC enables access to an array of leading-edge technologies for microsystems researchers. Other strategic national partners include the National Research Council Canada and institutes such as the Canadian Photonics Fabrication Centre; Networks of Centres of Excellence; and regional consortia such as TR Labs. CMC's initiatives in building international alliances are increasingly important for Canadian research capacity

A New Era of Microsystems

In the 21st century, new and different types of microsystems technologies are expanding the toolkit available to researchers and developers:

- Microelectronics will continue to be a foundation technology, both for its own special features and its ability to enable other technologies.

- Photonic, mechanical, fluidic, chemical, biological and molecular systems that channel energy through non-electronic forms are taking microsystems well beyond the frontiers of electronics. Competitive science is exploring the characteristics of emerging non-microelectronics technologies, whether they are used individually, in combination with each other or with microelectronics.
- As a bridge to human-scale activities, microsystems are also projected to be central to realizing the benefits of nanoscale technologies.

CMC's Strategic Plan uniquely positions the organization to meet the immense challenges in the microsystems arena—contributing to Canada's competitiveness by stimulating increased commercialization and responding effectively to opportunities and increased expectations of its university, industry and government stakeholders.

CMC's New Role

CMC's strategic vision encompasses a national microsystems initiative for Canada. Building on its strengths, CMC will facilitate the design, manufacture and testing of microsystems prototypes that are critical for demonstrating proof-of-concept and for product development. Providing access to tools and technologies to enable microsystems research, and the development of highly qualified people, is central to CMC's Strategic Plan.

The main elements of CMC's innovation and competitiveness strategy in microsystems consist of:

- New efforts directed towards achieving commercial benefits through investments in pre-competitive microsystem research and technology development (R&TD)²
- Development of two national microsystems-related network initiatives and two national microsystems-related infrastructure projects
- Continued investment in baseline microsystems tools and technologies infrastructure in Canadian universities, with support from the Natural Sciences and Engineering Research Council (NSERC) and matching contributions from industry

CMC will play a leading role in some of these initiatives and a supporting role in others. Enabling and transformative, microsystems are key to unlocking a safer, healthier and more productive future, creating competitive and social advantages. CMC will help to deliver this future to Canada.

CMC welcomes any feedback you may have on this Plan to **Sonya Shorey**, Manager of Communications, CMC: shorey@cmc.ca

Conference Summaries

ITRI/NATEA/MANCEF Asia-Pacific Commercialization Forum

From Hsinchu, Taiwan-Roger Grace

June 24-25, 2004

As part of the MANCEF strategy to expand its influence into the global MEMS/NANO community and to further its charter for education of the community regarding commercialization issues, MANCEF committed to co-develop a two-day commercialization workshop with the Industrial Research Technology Institute (ITRI) and its North American sponsored group, the North American Taiwanese Engineer Association (NATEA) at the ITRI headquarters located in Hsinchu, 60 miles south of the Taiwan capital, Taipei. ITRI, founded in 1973, is a world-class player in the semiconductor, personal computer, communications, micro and nanotechnology sectors. Its role is to address both current and future industrial needs and future growth issues of these

technologies. In addition to the two day conference that was attended by over 170 people, ITRI planned and hosted an all-day tour to the leading Taiwanese MEMS foundries which included Asia-Pacific Microsystems, NeoStones Microfabrication Corporation, Touch Micro-system Technology and Delta Electronics. The conference co-organizers were Tom Chang (Storage Card) representing NATEA, T.S. Lin (ITRI) and Roger Grace (Roger Grace Associates) representing MANCEF.

A number of MANCEF executive board and committee members supported the conference including President [Kees Eijkel](#) (Mesa+) who presented a paper, [Jane Niall](#) (Victoria Australia Government), MANCEF Vice President of Asia-Pacific who was the Forum co-chairman, Joe Brown (Suss Microtec) and MANCEF Executive Committee who presented a paper and [Roger Grace](#) (Roger Grace Associates) and MANCEF Past President who presented two papers. Four papers were presented by NATEA members. The Forum was sponsored by a number of companies familiar to MANCEF including founding members EVGroup and STS. They were joined by Suss Microtec. Dr. Cheng –I Weng, ITRI Chairman provided opening remarks.

The forum attracted participants from a number of countries including Australia, Austria, Germany, The Netherlands, UK, US, and Japan. The two day forum was the platform for 20 presentations that addressed:

- The critical success factors for commercialization (R. Grace)
- Overviews of various application sectors including:
 - Automotive (R. Grace)
 - RF MEMS (Dan Hyman-Xcom Wireless)
 - Magnetic memory (Tom Chang)
 - bioMEMS (Kurt Petersen-Cepheid)
- Infrastructure issues including the Taiwanese MEMS roadmap
- Foundry activity in Taiwan and Japan
- Packaging and a number of presentations on regional activities of MEMS commercialization in Taiwan and Japan
- Presentations on manufacturing tools

The first day technical session concluded with a panel discussion moderated by Dr. Star Huang-Asia Pacific Microsystems) and Roger Grace.

In addition to the technical presentations, there was a small exhibition of 20 suppliers and organizations and a tour of the ITRI MEMS research facility. Speakers and sponsors were hosted to a buffet dinner on Thursday evening. The program concluded Friday evening with a wine tasting reception hosted by MESA + and the Victoria Australian government who provided a lovely assortment of Australian wines from the Victoria region (thank you Kees and Jane).

Currently, ITRI and MANCEF are in the process of developing a memoranda of understanding to help further the role of MANCEF in assisting Taiwan accelerate the commercialization of its MEMS industry vis-à-vis future workshop/conference collaborations.

Conference Summaries

10th Micromachine Summit

From Grenoble, France-David Tolfree, MANCEF Regional VP

The 10th Micromachine Summit, hosted by MINATEC, CNRS and NEXUS at Grenoble, France had 109 registered delegates from 18 countries and regions. Over two days, 55 speakers gave their country's reviews, spoke on

Government and national programmes, infrastructure, education, industrial developments, and the future outlook for advanced research in MNT.

The conference gave an overall status of micro and nanotechnologies, and a vision of new directions. Nanotechnology had more prominent platform than in previous summits. This year emphasis was placed on education and the greater need to improve infrastructure for R&D and manufacturing. Presentations from the Japan's presenters demonstrated the usual innovative approach to future applications and products. The UK reported on its Government investment for the latter and giving the new Microsystems Packaging Centre as an example. Relative newcomers like Australia, Israel and India, although with small MNT communities, are making huge investments to support their MNT infrastructure. These countries could compete favourably with other Asia-Pacific countries in the future.

The breaks and dinners provided good networking opportunities; the absence of an exhibition was actually an advantage as people had more time for discussion. MANCEF and COMS2004 were referred to in a number of presentations, given by myself, Tom Cellucci of Zyvex, Patric Salomon, Michael Gaitan of NIST, Chris Lumb of Micralyne and others.

Finally, the MicroMachine Summit was a good international meeting having many advantages over the more conventional conferences as it gave greater opportunities for delegates from different countries to network without commercial pressures.

Important to note: the next Summit will be held in Dallas, Texas with National Institute of Standards and Technology, Zyvex Corp., and MANCEF taking the leading roles in organizing the Summit. The 2005 meeting in Dallas will allow MANCEF the opportunity to highlight the regional prowess of the Dallas and regional micro/nano efforts. See the [Announcement above](#).

Conference Summaries

MEMS IV

From Los Angeles, CA - [Steve Walsh](#)

MEMS IV: the ASME Fourth Annual MEMS Technology Seminar was held 26-28 April at the Hyatt Regency Los Angeles. This ASME conference was the first activity that MANCEF participated in after our joint agreement. MANCEF presented a very well received keynote speech on the commercialization of Nanotechnology based on the new nanotechnology roadmap chapter. There were five talks or short courses including: radio frequency (RF)/ wireless MEMS, bioMEMS, MEMS packaging, micro fluidics, and the reliability and manufacturability of MEMS.

Exceptional speakers such as Steve Bart, Jack Judy, Robert Giasolli and many others provided exceptional tutorials on these subjects. The commercialization of Nanotechnologies was based on the new nanotechnologies roadmap chapter in the MANCEF roadmap.

A number of interesting elements were displays in this talk including the top Assignee of patents on Nanotechnologies was L'Oreal more than doubling the patent output of their nearest competitor IBM. Another segment of the presentation discussed numerous Top Ten Nanoproducts for the year. These included Kodak's new OLED cameras, L'Oreal deep penetrating skin care product, smart visors, bearings for hard disk drives and the like.

Numerous definitions of what exactly is Nanotechnology were presented with many agreeing on the US Nanotechnology Initiative definition of Nanotechnology:

“Research and technology development at the atomic, molecular, and macromolecular levels, in the length scale of approximately 1 – 1000 nanometers, to provide a fundamental understanding of phenomena and materials at the nanoscale and to create and use structures, devices, and systems that have novel properties and functions because of their small and /or intermediate size.

Was more a good place to start the discussion rather than to define the field.

Hanover Messe:

19 – 24 April in Hanover, Germany

MicroTechnology at the HANNOVER MESSE will focus on all the key trends and technologies, with special emphasis on practical applications. MANCEF thanks Board member, [Christine Neuy](#) and the rest of the IVAM team, President-Elect, [Kees Eijkel](#) and the University of Twente team, especially Daan Bilj, NanoNed, MINACNed, and [Patric Salomon](#) of Enabling MNT for their support.

Semicon Europa:

19-23 April in Munich, Germany

MANCEF exhibited at SEMICON with the tremendous assistance of Board member, [Peter Podesser](#) and the EVGroup team, Board member, Walter Roessger and the SEMI team, and [Henne van Heeren](#) of EnablingMNT, for their support of the exhibit booth and the COMS2004 conference.

It was a pleasure to catch up on what the Micro-Nano associations of Europe are working on these days.

MANCEF Offers Online Micro-Nano Glossary

- Feeling a little bewildered by some of the jargon used in the Micro-Nano industry?
- Need to check your definitions before turning in that marketing analysis or newspaper article?
- Were you doing technical research and wanted to use the appropriate business terms to describe your commercialization plan?
- Perhaps you need a handy glossary of technical terms for the appendix of your business plan?

Representing the culmination of ten years of industry discussion about the need to standardize references, the foundation is offering an online glossary of Micro-Nano terms. Developed for the [MANCEF International Microsystems-Top Down Nano Roadmap](#), the foundation hopes this will be helpful to all stakeholders across the commercialization process. The Glossary can be found at: www.mancef.org/glossary.htm. Tell your colleagues about this free resource.

We send brief information on MANCEF activities, events, and developments periodically during each month, usually no more than once a week. The mailing list is password-protected and is only used for one-way announcements from MANCEF. No spam, no discussions. [Sign up for the MANCEF e-information list](#). Messages will arrive from dbase@mancef.org and simple instructions are encoded at the bottom of each MANCEF message should you desire to unsubscribe from the MANCEF information list.

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117 Bryn Mawr Drive SE #27 | Albuquerque, NM 87106 USA | (505) 255-1826 (phone) | (505) 255-1827 (fax)
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