

[Newsletters](#)

MANCEF Quarterly Newsletter

Third Quarter 2007, Vol. 5

October 2007

Executive Board

President
[Clive Davenport](#)
cdavenport@mancef.org
Small Technologies Cluster

VP Americas
[Carol Steele](#)
University of South Florida
csteele@mancef.org

VP Europe
[David Tolfree](#)
Technopreneur Ltd
dtolfree@mancef.org

VP Asia/Pacific
[Jane Niall](#)
IIRD - Victoria
jniall@mancef.org

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Michigan Tech University
rwarrington@mancef.org

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swalsh@mancef.org

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President's Message from Clive Davenport

COMS2007 Melbourne – an outstanding success!

The Melbourne weather turned it on for us in style. Beautiful sunny 20 degree days, a fantastic clear night view of the city skyline for the conference dinner.

A host of extra curricular activities for our delegations and visitors. Everything from cute fairy penguins toddling over the dunes to superb vineyard vistas. For those who couldn't leave science and technology alone we offered visits to some of the world's best research centres from "Stem Cell" research to material science.

This year we organised several special events as a part the conference activities such as the Education Day, open to teachers, students and the general public, at the BMW Edge Theatre at Federation Square. An impressive glass structure with views across the picturesque Yarra River that flows through the city, to the Botanical Gardens beyond. Bright and early on the Wednesday morning three of our intrepid internationals, Kees Eijkel (Netherlands), Lou Hermans (Belgium) and Bob Mehalso (USA) were guest speakers at a breakfast seminar hosted by Engineers Australia – the Australian Society of Engineers.

And so to the conference itself.

The Governor of Victoria, Professor David de Kretser and Mrs Jan de Kretser, invited us to a Sunday evening reception at Victoria's Government House. The Governor's welcome speech highlighted education and workforce development as key issues in



jwylde@mancef.org

Secretary

[Robert Giasolli](mailto:Robert.Giasolli@mancef.org)

Nanowise

rgiasolli@mancef.org

these emerging new technologies. The Victorian Minister for Innovation, Mr Gavin Jennings, followed and emphasised the role of micro and nanotechnology in "Greentech".

Monday morning saw Mr Evan Thornley, the Parliamentary Secretary, and founder of the NASDAQ listed "LookSmart", open the conference and give our first plenary stressing the need for nanotechnology to progress in balance with ethical and societal concerns.

The second of our plenary speakers, Prof Hiroshi Yokoyama from the AIST in Japan, described how Japan had lost ground in manufacturing and how they were moving to win it back.

Following coffee we were off and running in 4 streams – Biotechnology and Life Sciences, Manufacturing, Emerging Materials and Emerging Applications with keynotes from Prof Yoshinobu Baba, Dr Erol Harvey and Dr Gil Herrera.

On Tuesday our first plenary, Dr Richard Jefferson, challenged us over locking up IP in preference to making platform technology available as "open source" to accelerate innovation. Prof Mandyam Srinivasan then showed us how the humble honey bee maneuvers across the countryside using the most elegant simple navigation system. We have so much to learn from Mother Nature.

Then followed streams in Water, Energy, "Applications and Transformations", Food and Agriculture, Investment and IP with keynotes from Prof Max Lu, Dr Paul Holper, Dr Leo Hyde, Prof Masayoshi Esashi, Dr Herwig Kirchberger, Dr Ray Radosevich and Dr Peter Tsepeleff.

Mid afternoon we broke from the talks and leapt on buses for visits to the Australian Stem Cell Centre, the new Australian Synchrotron and MiniFAB, followed by a casual dinner at the Great Provider Restaurant at the Small Technologies Cluster. Entertainment for the evening featured a whip cracking display with several of our members exhibiting their skills.

Wednesday, Patric Salomon opened up on activities in Europe as we explored individual countries in our Global Overview. We investigated Business Methods and Dr Michael Pitkethly explained what the UK was doing and Dr Janusz Brysek showed us how to make our next \$Billion in the stream "Pure Play Foundries: Hot Commodity?". Dr Donald Bruce delved into societal impacts and risks and we couldn't have a COMS without our Dr David Tolfree chairing a HARMST stream.

The amazing Gaye Hamilton outshone us all by rallying children to show us what the future was really going to look like and I must admit it looks very bright. The Minister for Skills and Workforce Participation, Ms Jacinta Allen, launched the Nanotechnology Victoria (NanoVIC) "Nanobits" education kit. And surprise, surprise, our Prof Steve Walsh got sick of us grown ups and ran down the street to the Education Day at BMW Edge Theatre, Federation Square, and joined the kids.

And in amongst all that activity the folks from Mexico (COMS2008) kept us well lubricated with lashings of primo Tequila.

For COMS all that was left was the conference dinner at "Carousel" on Albert Park Lake – a great end to a great conference but still we had our winners to announce.

Our Commercialisation Competition Winner: Lobo Vaccines (Randal Cannady representing the team from the University of New Mexico). The cheque for \$5,000 (Australian) is in the mail.

Our Coventor Scholarship winner – Norizan Mohamad, Swinburne University.

Our Olympus Award winners (with our sincere thanks to Olympus):

- Best Abstract/Paper: Sue Neuen - Orange County Science Centre, California. (Intentionally Designing a Science Education "Toolkit" to Build the Workforce of Tomorrow)
- Best Conference Presentation: David Martin – Australian Institute of Sport. Are we using technology as a Sword or Shield? Best New Application: Malcolm Gower for showing us some amazing possibilities with negative refractive index.
- Best Business Opportunity: Janusz Brysek for pulling together a superb stream on foundries and setting us on the path to billion dollar opportunities.
- Best Education and Workforce Development Presentation: Brian Stratling for showing us what a bright world our children see before them.

On behalf of the hosts and organisers of COMS2007 Melbourne, may I say that we thoroughly enjoyed showing everyone around our town, the endeavours of our researchers and micro and nanotechnology businesses, renewing friendships and most of all, engaging with so many members of our international small technologies community who journeyed to Melbourne.

In every conference there are gems – for me this year with thanks to Sue Neuen, Orange County Science Centre - "the keys to new knowledge creation are to learn, unlearn and relearn" – exceptional!

And that was COMS 2007 in a nutshell.

Thank you

Firstly to our host the Victoria Government a huge vote of thanks

To my organising co-chair Erol Harvey, all our session chairs and speakers a very big thank you – without you we wouldn't have a conference. A great thank you to our Platinum sponsors EVG and Realtek and our Media sponsors EuroAsia Semiconductors, Enabling MNT, MST News, AZo Nano and Small Times. To all our exhibitors - you created great interest for us all. We look forward to hearing of many deals to come.

To the team in Melbourne – an exceptional effort and a huge thank you.

To the person who instigated, attracted and saw through to execution COMS 2007 Melbourne: Jane Niall, MANCEF Vice President Asia Pacific. You truly deserve all the applause. Thank you.

Conference statistics:

- 420 COMS registrations including exhibitors (to be confirmed)
- 70 Teachers and students, plus 30 general public at Education Day
- 70 Engineers at Engineers Australia breakfast seminar
- 30 Innovation X change (IXC) clients and staff at COMS Dinner

COMS2008 Mexico

MANCEF's planning team is already preparing for COMS2008 to be held in Mexico. The large Mexican delegation to COMS Australia decided, after surveying COMS2007 attendees, to move the event from Guadalajara, Mexico's Silicon Valley, to Puerto Vallarta on the Pacific coast of Jalisco state.

Dr Francisco Medina, COMS2008 Programming Chair, has promised us a conference to end all conferences - a world-class program bringing together Micro-Nano commercializers from across the entire American hemisphere, heaps more tequila (the champagne of Mexico and a pride to Jalisco state!), loads of fun and frivolity in this beautiful ocean resort location, incredible food, and very warm Mexican hospitality. And somewhere in amongst all those good times there will be matchmaking efforts with Mexican companies hosted by the federal and state economic development departments from both Guadalajara and Mexico City. Who knows, we might even entice the world's richest man, who happens to be from Mexico, to join us. We are looking forward to another absolutely fantastic event. Do come join us there; put it on your calendars and in your budgets now!

News Flash - Francesca Calati

Francesca Calati, one of our key speakers at the COMS Education Day, has just been awarded the Australian Prime Minister's Prize for Excellence in Science Teaching in Secondary Schools for her work on a nanotechnology curriculum.

Please see: <http://www.nanovic.com.au/?a=news.news&p=51&id=428>

MANCEF's Mission Statement

MANCEF connects the global community engaged in the commercialization of emerging technologies.



Save the Date!!!

COMS2008 will be held in Puerto Vallarta, Mexico August 31 - September 4, 2008

Regional Spotlight:

Mexico: A Good place for Business

"Innovation has nothing to do with how many R&D Dollars you have, it's not about money. It's about the people you have, how you're leading them, how much you get from them."

Steve Jobs

President and CEO of Apple

"It's through curiosity and looking at opportunities in new ways that we've always mapped our path at Dell. There's always an opportunity to make a difference."

Michael Dell

Chairman of the Board, Dell Inc.

Introduction

- Mexico is an emerging force that brings its business partners innovative technology companies to serve the global market.
- Mexico has a population of more than 100 million people; currently exporting to the United States more than \$220 Billion US Dollars, making Mexico the third largest trading partner of the United States.
- Mexico has more than 125 R&D institutions and 1200 universities whose student population has nearly doubled in 10 years.

- Mexico has an extensive and highly qualified pool of talented professionals who have developed top tier technological and entrepreneurial skills.
- To foster Mexico's capacity to compete in global markets, the Ministry of Economy has established programs to further strengthen the more technological regions that are becoming the source of new technology based companies, aided by financial support from the Ministry's Small & Medium Enterprise (SME) Fund to build global companies.
- An important step in the success of these companies is helping them enter the most dynamic technology and entrepreneurial ecosystems in the world, which has led to the creation of the Technology Business Acceleration Program, (TechBA) and the Centre of Articulation for Microsystem Technologies, (CAPMEMS).
- These types of programs have facilitated the growth of high technology and global business in Mexico, making Mexico a strong contender for all high technology value chain activities.

The Mexican Economy: The Facts

- The Mexican economy has acquired a greater strength and stability, managing to stabilise over the past decade.
- Mexico now has stable economic foundations, more favourable international surroundings and consistent public policies.
- Mexico has a free market economy that recently entered the trillion dollar class.
- The Market contains a mixture of industry and agriculture with high technology, increasingly dominated by the private sector (+20.9% Investment, Bank of Mexico)
- Mexico exhibits stable economic growth presenting lower risk for foreign investors.
- Many foreign investors are actually investing heavily in Mexico taking advantage of a good opportunity (Direct Foreign Investment +28%, the Rest of World – 23%, UNCTAD).
- Recent administrations have expanded competition: Seaports, Telecommunications, Electricity generation, Natural gas distribution & Airports.
- Per capita income is 1/4 of the United States.
- Trade with the US and Canada has tripled since the implementation of NAFTA (1994).
- Mexico has 12 free trade agreements, putting more than 90% of trade under free trade agreements with over 40 countries.
- Public investment levels are currently 359,425 Million Pesos (4.29% of GDP) compared to 193,489 Million Pesos in 1993.
- Inflation is at its lowest level for more than 37 years
- Interest Rates have also achieved a minimal level:
- The Current Account Deficit has been completely eradicated
- The economic conditions have permitted the risk level for foreign investment in Mexico to be less than 1/3 of the level of six years ago: 979 to 132, a reduction of 87%
- Direct foreign investment into Latin America and the Caribbean has been around \$50,000 Million Dollars, with Mexico obtaining around \$13,601 Million:
- The Mexican Economic Activity Growth is in parallel to the observed U.S. activity
- The performance of exports from Mexico has witnessed significant improvement in all sectors:

Annual Growth Of Exportations (%)			
Sector	Jan-Dec 05	Jan-Jun 06	% Growth
Total Exports	13.7	28.7	52.3%
Oil	34.8	59.0	41%
Non Oil	10.6	24.0	55.8%

Farming	7.8	52.0	85%
Mining	29.6	-4.9	-83%
Manufacturing	10.6	22.9	53.7
Factory	11.3	20.8	45.7
Rest	9.8	25.6	61.7

- The economists within Mexican organisations have changed their vision towards investment, from uncertainty to a good moment investment

Programs for Innovation

As previously mentioned, the Ministry of Economy and therefore the Government of Mexico has been activity involved in pursuing programs to develop an innovative, technology based competitive advantage.

Two of these programs are TechBA and MMC, to co-ordinate these programs the Ministry of Economy has selected The U.S.-Mexico Foundation for Science (FUMEC) as a strategic partner that brings into the program strong technology and business networks

TechBA

- The TechBA acceleration process facilitates access to market, financial, managerial skills and technological resources of highly entrepreneurial ecosystems.
- As a result of this process, companies rapidly increase their value and become players in the international technology business markets.
- Another key element has been the selection of ecosystems with high innovation drive, such as Silicon Valley in California, Austin in Texas and Montreal in Quebec.
- In each region the TechBA partners with recognised organisations that have a proven track of successful results in accelerating innovative companies.
- Tech focuses on innovative companies related to high-tech sectors with strong presence in the global technology markets, such as:
 - Information and Wireless Technologies
 - Biotechnology and Bioinformatics
 - Life Sciences
 - Microsystems, including Semiconductors and MEMS
 - Advanced Materials and Nanotechnology
 - Robotics
 - Multimedia, animation and education services

MEXICAN MICROSYSTEM CONSORTIUM (MMC)

MMC is a spin off from The U.S.-Mexico Foundation for Science (FUMEC).

Its mission is to promote and implement actions to facilitate Mexico's growth to be a world leader in all related aspects of Microsystems: MEMS, Embedded System, Electronic Design (FPGAs & DSPs)

Its function is to articulate between Researchers, Organisations, Decision-makers, investors, Academics and others to create collaborations, alliances and partnerships to facilitate strategic advantage in the

development, products, processes and businesses associated to MEMS.

The MMC services are wide ranging and cover every aspect of the value chain in MEMS from research through to commercialisation:

- **Consultancy & Organisational Links**; this service is aimed towards technologically orientated companies within the Medical, Automotive and Food market sectors. The service offers advice, identifies opportunities, collaborations that strengthen the application of MEMS for commercial advantage.
- **Organisational Technology Intelligence Systems**; This system is focused towards monitoring market tendencies, niches of opportunities, possible new products, business opportunities, technological developments and support with investments, all related to MEMS. Its function is to support and detect opportunities for Mexico that incorporate opportunities for high technology and indicate the correct steps towards creating revenue.
- **Capabilities & Events**; This service functions promoting and facilitating the formation of human resources in roles such as design, manufacture, encapsulation, business, commercialisation etc, etc. In the majority of events the presenters are specialists from the United States and Canada.
- **International Collaboration**; The focus of this section is to identify collaborations with organisations from the United States and Canada, in order to offer Mexican companies the best possible strategic advantages. Recently FUMEC-MMC formulated a collaboration with CMC of Canada, and also has various relationships with US organisations such as MANCEF.
- **MEMS Design Centre Networks**; In Mexico an infrastructure has been developed over the past few years, consisting of eleven academic / research institutions located all over the country. All of these institutions possesses the capabilities to develop MEMS projects from research to design for any application.
- **Innovation Laboratories Network**; Four institutions have been selected from the design network that indicate exceptional abilities. Each of these institutions has competencies that cover all market sectors and in collaboration offers services covering every aspect of the value chain; Design, Characterisation, Prototyping, Encapsulation, Validation and Commercialisation:

Conclusion

Mexico is currently building global, profitable and exciting technological relationships, in order to strengthen the NAFTA global offering. Now is the right time to be involved as many investors are witnessing, with intelligent investments Mexico will provide the appropriate returns.

Prepared by
Mexican Microsystem Consortium (MMC)

MANCEF wants your feedback!

We will be redesigning the MANCEF webpage in the next few months, and would like the membership's feedback on priorities. Please send an email to info@mancef.org with Website in the subject line, giving us your "wish list". All respondents will be entered in a drawing for a Roadmap chapter.

Thanks in advance for helping us serve you better!

New Publication:

New Book Introduces Kids to the Wonders of MEMS and Nanotechnology

MEMS & Nanotechnology for Kids provides a basic introduction to MEMS (MicroElectroMechanical Systems) and nanomaterials, and demonstrates that small is cool!

Bourne Research LLC today announced publication of the new book, MEMS & Nanotechnology for Kids. Authored by Marlene Bourne, President & Principal Analyst of [Bourne Research](#), the book gives readers a basic overview of MEMS (MicroElectroMechanical Systems) and nanotechnology; it describes how various MEMS devices and nanomaterials work, why they're useful, and includes examples of where they're found.

"Sparking the imagination of kids about the possibilities of science and engineering is so important," says the author, Marlene Bourne. "MEMS and Nanotechnology for Kids aims to inspire boys and girls alike to pursue the study of science, technology, engineering and math by showing the direct impact these fields have on things kids use or interact with on a daily basis."

MEMS & Nanotechnology for Kids is written for middle school students ages 11-14, although younger children and adults alike may also benefit from the easy-to-read explanations. With nearly 80 color photos, the 32-page book explores what readers can find at the micro- and nano-scale, and then describes how various MEMS devices and nanomaterials are being put to use in all kinds of products. It's an ideal companion to the more in-depth book, A Consumer's Guide to MEMS & Nanotechnology, which provides greatly expanded discussion and hundreds of examples in the same reader-friendly format.

For more information about MEMS & Nanotechnology for Kids, or to learn how to purchase the book, please visit: www.bourneresearch.com/book.htm. Bulk discounts are available to schools, museums and other educational organizations.

About Bourne Research

[Bourne Research](#) is a trusted source of market intelligence, with a specialized focus on MEMS (MicroElectroMechanical Systems), nanotechnology, and the convergence of both. Its founder, Marlene Bourne, is a highly respected industry analyst with more than a decade of experience following the development of emerging technologies, and is internationally recognized as one of the leading experts on MEMS.

Find Work or Workers at the tinytechjobs Career Site

MANCEF is pleased to hear that members of the community are connecting through the MANCEF-tinytechjobs collaboration. The numbers of employers and job-seekers using the MANCEF/TTJ web site interface continues to grow. Congratulations! Search for jobs, contacts, or events in the micro- and nanotech realm at the Resources web page on www.mancef.org. Check it out now!

Items of interest in the news:

[Smart Imaging Technologies received R&D 100 Award by the R&D Magazine](#)

[IVAM updates success story – Product Market "Micro, Nano & Materials" at MicroTechnology/HANNOVER MESSE 2008](#)

[Randy Burge: Today's sci-fi could be reality tomorrow](#) (Albuquerque Tribune)

[Australian Nanobusiness Forum form Alliance with Nanotechnology Business Creation Initiative of Japan](#) (Azonano)

[Swiss Scientists Develop Floating Solar Island](#) (Goodcleantech.com)

[MESA - Sandia's largest project opens](#) (Sandia.gov)

[L-3 Communications Avionics Systems Selects Memscap for Flight Control Revolution](#) (Businesswire)

[Bay Area's Joint BioEnergy Institute Gets Financial Kick-Start from DOE](#) (Newsblaze)

[Nanotechnology inventory grows larger](#) (Science Daily)

[Semiconductor, nano technologies 'married'](#) (Science Daily)

[Nanotubes seen inside living animals](#) (Science Daily)

[Nansulate Paint May Soon Generate Electricity from Thermal Differences](#) (pureenergysystems.com)

[Small tech makes strong showing among last NIST ATP grant winners](#) (Small Times)

[Canada opens nanotech center with commercial focus in Edmonton](#) (Small Times)

[Nanotechnology part of 2009 U.S. R&D budget priorities](#) (nanotechnology.com)

[New age game: Rock, bioactive paper, scissors](#) (isa.org)

[New plastic is thin, transparent, and as strong as steel](#) (.scifi.com)

[Boffins promise large-scale nano-material manufacture](#) (vnunet.com)

[Faculty Team to Develop Nanotech Risk Assessment Minor](#) (JHU Gazette)

[Experts blast US nanotech report](#) (vnunet.com)

Publication Opportunities

MANCEF members are invited to contribute articles to MST News. The Editorial Calendar is as follows:

January 2008

1. Energy for Microsystems - Microsystems for Energy
2. BioMST

Here we'll pick up two topics we already had in the past, but because of their dynamic development we think it is time to have a follow-up. Deadline for abstracts: Oct. 15, 2007

February 2008

Manufacturability of Microsystems

Deadline for abstracts: Dec. 15, 2007

This is a very complex topic. We intend to focus it as follows:

- Advanced Packaging
- Production Services Infrastructure (diffusion of Microelectronic Production Technology towards MST;

- has the Foundry Approach a Future?)
- MST Production Equipment
- Advanced Technologies and Equipment for Cheap but Hi-rel Components for Automotive Applications

March 2008

Micro and Nano Materials

Deadline for abstracts: Feb. 15, 2008

Focal points:

- Unconventional MST Solutions with "Exotic" Materials
- Nanomaterials for Microsystems
- Materials for "Magnetic Microsystems"
- Materials for Advanced Actuator Functions

Please contact:

Bernhard Wybranski,

Editor - mstnews

Tel: +49 30 310078-167

Fax: +49 30 310078-256

mstnews@vdivde-it.de mstnews@vdivde-it.de

The [MANCEF](#) Quarterly newsletter is also interested in publishing articles on MNT commercialization, as well as any information relevant to the MANCEF community.

If you would like to contribute, please contact nwylde@mancef.org

Equipment Maker News

EV Group

- 2007-10-09 [EV Group´s new EVG850TB Bonding System selected by Major Austrian Semiconductor Maker for High-Volume, Ultra-Thin Wafer Processing](#)
- 2007-07-16 [UltraThin Wafer Handling solution introduced by Brewer Science and EV Group \(EVG\)](#)
- 2007-07-10 [EV Group \(EVG\) signs contract with SemiProbe for worldwide distribution of Wafer Probing Systems](#)

[Read more from EVG](#)

Oerlikon

- 03 Sep 2007 [Oerlikon names Jeannine Sargent CEO of Oerlikon Solar to further expand enterprise](#)
- 28 Aug 2007 [Oerlikon boost sales target for 2007 by 5-10 percent](#)
- 20 Aug 2007 [Oerlikon Optics concentrates on innovative growth fields](#)

[Read more news from Oerlikon](#)

Surface Technology Systems

- 25 Sep 2007 [STS co-host seminars on integrated process solutions for 3D Packaging](#)
- 04 Sep 2007 [SUSS MicroTec and STS take MEMS Technology Roadshow to Europe](#)

[Read more news from STS](#)

SÜSS MicroTec

- 11 Sep 2007 [Rohm and Haas Purchases Coating Cluster from SUSS MicroTec for Resist and Spin-on Dielectric Qualification](#)
- 14 Aug 2007 [SUSS MicroTec 200mm Coater Chosen by HD MicroSystems to Support Polyimide Material Technologies](#)
- 30 Jul 2007 [SUSS MicroTec Announces New Gamma XPress](#)

[Read more news from Suss](#)

Veeco

- 23 Aug 2007 [Veeco Introduces PV-Series Thermal Deposition Sources for CIGS Thin Film Solar Manufacturing](#)
- 21 Aug 2007 [Veeco Releases Next-Generation Optical Metrology System for Semiconductor Packaging Inspection](#)
- 27 Jul 2007 [Veeco Receives Orders for Multiple New ALD Systems for Next Generation Thin Film Magnetic Heads](#)

[Read more news from Veeco](#)

SPONSORED & SUPPORTED EVENTS

Here are some upcoming events that the foundation believes are important. This is not a final list of supported events. Keep an eye on our [Events web page](#) for exact dates, venues, and other information:

COMS2008	31-August - 4 Sep 2008	Puerto Vallarta Mexico
CMC Microsystems 2007 Annual Symposium	17- 18 October, 2007	Ottawa, Ontario
Nanoparticles for European Industry II	24-25 October 2007	The Olympia Conference Centre, London
The Technology Commercialization Forum (TCF)	5-6 November 2007	Marina Mandarin
Investing in Medical Nanotechnologies II, conference and exhibition	28-29 November 2007	Royal College of Surgeons, London
Nanotechnology for Security and Crime Prevention	17 January 2008	The Royal Society, London

3rd International Conference on Nanotechnology and Smart Textiles for Industry and Fashion	19 March 2008	The Royal Society, London
Nanotechnology: A Contributor to Reducing Animal Experiments?	28 - 29 May 2008	The Royal Society, London
The 2nd Thailand Nano Conference	August 13-15, 2008	Phuket, Thailand
NanoThailand Symposium 2008 (NTS2008)	November 6-8, 2008	Bangkok, Thailand

PUBLICATIONS

Individual 2nd Edition International Micro-Nano Roadmap Chapters Available

The 2nd edition roadmap is a "living document" that has been 6 years in the making. With the introduction of the hugely successful First Edition in September 2002, the Second Edition builds on what the leadership team learned and our customers told us what they needed to know to succeed in the MST marketplace. We've almost sold out of the 2nd Edition copies, so order yours soon.



While a good value as a complete roadmap, some customers have requested to purchase individual chapters. We have made printed individual chapters are now available for the following chapters.

[Order individual chapters here](#) (.pdf):

- [Nanotechnology](#) (explores the nuances of Nanosystems, nano enabled industry segments)
- [MEMS Patents](#) (contains a year by year mapping of Microsystems intellectual property)
- [Process and Equipment for MST](#)
- [Equipment and Tooling for MNT](#)
- [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](#)

The CD-ROM version of the International Micro-Nano Roadmap contains **both 1st and 2nd Editions**. The **2nd edition CD of the Roadmap** has an accompanying printed version.

Members, Partners, and 1st Edition customers receive significant discounts.

We encourage becoming a member of MANCEF in order to receive member price of \$350 for the roadmap. Individual MANCEF membership costs \$150 for two years. The non-member price is \$650 for each copy of the Roadmap.

- Download the [Roadmap order form](#) (.pdf)
- Download the [Individual Membership form](#) (.pdf)
- Download the [Roadmap sales brochure](#) (.pdf)
- Download [2nd Edition Executive Summary](#)

If you would like to see your company news included in the MANCEF quarterly newsletter, please send information to nwylde@mancef.org for review.

MANCEF Members

Charter Members



[Advanced Jisso Technology](#)

Industrial robot and vision systems



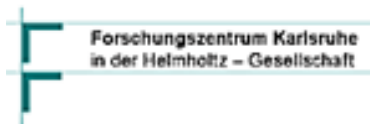
[CSM Analytical](#)

Designs and produces cost efficient, reliable sensing devices



[EV Group \(EVG\)](#)

Wafer processing equipment for R&D applications and fully automated processes



[Forschungszentrum Karlsruhe](#)

Materials, Environment, Health, Energy, and Key Technologies Research and Engineering



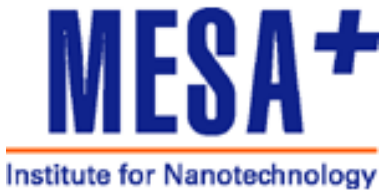
[Glaxo Smith Kline](#)

Research-based pharmaceuticals



[MEMSCAP](#)

Components, modules and systems, IP elements, and design and manufacturing solutions



[MESA+](#)

Nanotechnology, microsystems, materials science and microelectronics training and research



[Micralyne](#)

Micromachining, thin film deposition, and test and assembly capabilities



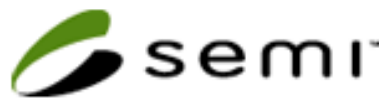
[Oerlikon](#)

Coating, vacuum, precision, and semiconductor technology



[Sandia National Laboratories](#)

Develops science-based technologies that support U.S. national security



[SEMI](#)

Semiconductor, MEMS, and FPD Industry and Standards Information



[Surface Technology Systems](#)

Specialist plasma etch and deposition systems

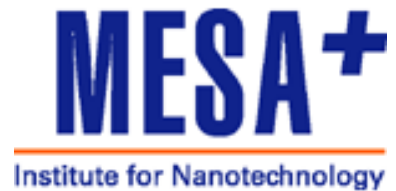
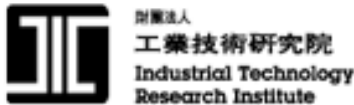
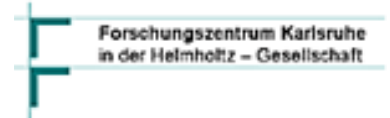


[Süss MicroTec](#)

Mask aligners, bonders, flip chip bonders, spin coaters and probe systems; advanced packaging for semiconductors

Current MANCEF Members:

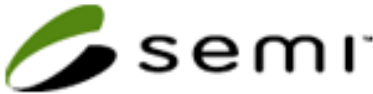
MANCEF would like to welcome our newest members, whether individual, corporate, academic, or government. To renew your membership, please fill out the [Membership form](#)



ærlikon

OKMETIC

PHILIPS



SURFACE TECHNOLOGY SYSTEMS



UNIVERSIDAD
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The University of New Mexico
GALLUP



The University of New Mexico

