



ARRRO - Applied Research Roadmaps for RF MEMS Opportunities

The EC (IST) has recently approved the support of a new study aimed at evolving technology roadmaps for RF MEMS (radio frequency based micro-electro-mechanical-systems). The importance of RF MEMS lies in the fact that such components are key to the next generation of mobile and wireless communication systems. The technology is also rapidly enhancing functional capabilities in health and transportation systems. All market sectors where Europe has established an industrial and technology lead. Furthermore, RF MEMS technology cuts across microsystems,

nano-technologies and semiconductor/CMOS technologies – all enabling capabilities which are critical for sustaining wealth and progress in Europe.

In this context, the activities of ARRRO centre around the benchmarking of national, regional, European and international research in order to road-map the research, development and exploitation of RF MEMS and stimulate future European programmes in this field. In essence, the prime objective of this project is to improve the integration of European

research in RF MEMS. The project will draw on existing expertise furnished by AMICOM, the European NoE in RF-MEMS and RF Microsystems.

This study is led by WTC – Wicht Technologie Consulting from Germany in partnership with CNRS – LAAS from France, IMEC from Belgium and BAE Systems' Systems Engineering Innovation Centre in the UK.

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The EU project NOESIS - Platform for Wide Scale Integration and Visual Representation of Medical Intelligence

The NOESIS project will provide health professionals involved in research and cure of cardiac and cardiovascular diseases with an easily and from everywhere accessible Knowledge Management system equipped with a Decision Support System tool, to be used for supporting them in their clinical decisions both in emergency situations and during their daily work with patients. NOESIS will develop an intelligent environment that enables ubiq-

uitous management of citizens' health status and to assist health professionals in coping with some major challenges, risk management and the integration into clinical practice of advances in health knowledge. More information: www.noesis-eu.org

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Nano2Life Presents Results of Expert Survey

The main goal of the survey was to provide a useful perspective on future developments in Nanobiotechnology (NBT) and to contribute to a shared vision regarding the future of NBT research, taking into consideration barriers, ethics and public acceptance, commercialization prospects and the state of basic and applied research.

More details:

http://www.ictaf.tau.ac.il/N2L_expert_survey_results.pdf

NEXUS and FP6 IP & NoE Calendar

24 April 2006

PRONANO Workshop "Scanning Probe Arrays"

Ilmenau, Germany

Organised by the EC-funded Integrated Project PRONANO "Technology for the Production of Massively Parallel Intelligent Cantilever-Probe Platforms for Nanoscale Analysis and Synthesis"

<http://www.fsrn.ch/doc/c292.asp>

25 April 2006

Workshop on Design for Reliability and Manufacturability in MNT

Stresa, Lago Maggiore, Italy

Co-organised by the NEXUS Methodology Working Groups "Reliability & Test" and "Design Modelling Simulation" and the EC-funded Network of Excellence "Design for Micro & Nano Manufacture"

(PATENT-DfMM).

More information: DfMM News pages in this MST News or: www.patent-dfmm.org

18 – 28 May 2006

2nd GOSPEL School

Ustron, Poland

Organised by the EC-funded Network of Excellence "General Olfaction and Sensing Projects on a European Level"

More information:

<http://www.gospel-network.org/content/view/273/77/>

25 – 26 May 2006

First MINOS-EURONET Strategy Forum on the impact of converging technologies

Bucharest, Romania

Organised by the Micro-NanoSys-

tems EUROpean NETwork pursuing the integration of NMS and ACC in ERA

More information: www.minos-euro.net

8 Jun 2006

Second PATENT-DfMM PACKAGING Roadmapping Workshop

Berlin, Germany

(see other article in this NEXUS News)

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20-22 Sep 2006

Grenoble, France

4M2006 Conference

More information:

www.4m-net.org/Conference

MIMOSA Integrated Project: Ambient Intelligence Roadmap

In the framework of IP MIMOSA a roadmap for Ambient Intelligence (Aml) has been established in order to show the consortium views on the future of Aml technologies and their related applications and, to some extent, business. It has been conceived as a common effort of the consortium, the initial structure being proposed by NOKIA and different ideas coming from all partners.

The grand vision of Ubiquitous Computing (as envisioned by Mark Weiser and elaborated by many others) covers several fields of technology. It is generally used to refer to computing and communication technology that has deeply permeated our living environments. The more recent term, Ambient Intelligence, emphasizes more the goal of placing a multitude of sensors and actuators in the environment, making it sensitive, adaptive and responsive to the presence of people and objects. The ultimate target of this development is Calm Technology, which seeks to hide the technology out of view almost completely so that people can live their lives undisturbed. Mimosa emphasizes the Technology track, as it concentrates on developing the necessary microsystem technologies. However, it also looks at related developments on the HCI and Intelligence tracks.

Some technology areas have been identified by the consortium as those essential to making the Aml visions a reality. In our view, these areas include (but are not limited to): Sensing, sensor networks, Microsystems and MEMS, Mobility, Short range connectivity, Wide area connectivity, Context recognition & reasoning, Service and application platforms, Human-machine interaction.

The Mimosa Aml vision is user centric. We target out solutions towards the end users of Aml systems. To support mobility, devices that people carry with them (such as mobile phones) are attractive Aml platforms.

In our analysis all different technological areas for Aml mentioned above have been considered and analyzed for three different timeframes of possible evolution. These timeframes are today's frame Now (2005), the Mimosa results' timeframe Later (2010) and the time beyond Mimosa Much Later (2015 onwards). We have considered each timeframe from several technological viewpoints, ranging from hardware to applications and human-computer interaction. An example of the defined roadmap for hardware technology for communications in Aml environments is shown in figure 1.

Based on the results of the roadmap analysis for the "now" timeframe, we have estimated the market of hardware micro and nano-systems for Aml in the MIMOSA context for the 2004-2010 time periods. When possible, we considered only products that are relevant for Aml. In the case of MEMS microphones for example, we did not include single MEMS microphones as they do not contribute to ambient intelligence; we only considered MEMS microphones arrays as they enable for example a better directionability of the acoustic interface. In the case of RF MEMS, it is not possible to distinguish components for use for a normal communication function and components which are used in Aml. Therefore, the RF MEMS market includes all RF Microsystems that will be used in mobile phones.

According to WTC - Wicht Technologie Consulting, the total market for micro and nanosystems for Aml in mobile phones for Aml was around € 128 million in 2004. Piezo MEMS, namely BAW duplexers and filters, were dominating the market in 2004 with around \$ 110 million. The remaining \$ 18 million were realized with pressure sensors, accelerometers and lab-on-chip.

More information:
www.mimosa-fp6.com

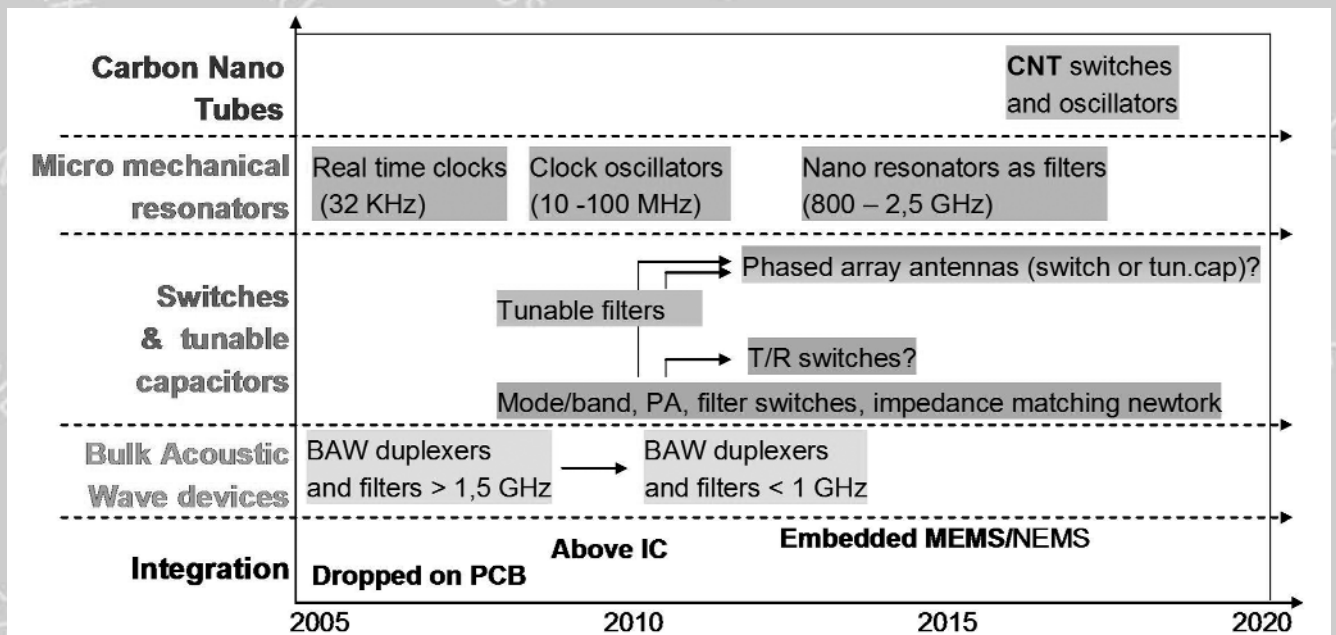


Figure 1: Roadmap of micro-nano HW technology for communication in Aml



NEXUS MWG and PATENT-DfMM Workshop on Design for Reliability and Manufacturability in MNT, 25 April 2006, Stresa, Lago Maggiore, Italy

Co-organised by the NEXUS Methodology Working Groups "Reliability & Test" and "Design Modelling Simulation" and the EC-funded Network of Excellence "Design for Micro & Nano Manufacture" (PATENT-DfMM). Main emphasis will be on reliability and test problems, where design methodologies can lead to significant improvements. Industry's design and reliability needs will be discussed and latest research results and new approaches will be proposed by the research community.

Morning session: Industry needs and current research in Reliability and Test for MNT

- How do industrial microsystems manufacturers deal with reliability and test?
- What is specific to reliability and test in high-volume production?

2nd GOSPEL School, 18 - 28 May 2006, Ustron, Poland

The GOSPEL school, organized by the GOSPEL NoE is an intensive course on all different fields relevant for Artificial Olfaction (AO) - from physico-chemical fundamentals to sensor fabrication. Additionally the basic principles of Biological Olfaction are explained because the respective PARADIGM SHIFT in AO will be necessary to overcome the current limitations and hindrances of AO. The school will be a ten days event in

- What are the main challenges for research?
- Presentation of current research initiatives and projects in reliability and test

Afternoon session: Building Reliability and Test into the MNT design flow

- How are reliability and test issues currently built into an industrial design flow?
- What do Design, Modelling and Simulation Tools offer to support reliability and test?
- How can methodologies, tools and databases be combined?
- Presentation of current research initiatives and projects to build reliability and test issues into tools
- How can researchers help industry (especially SMEs) to optimise reliability and test?

order to facilitate participation from industry. Lectures will be given by experienced scientists both from the fields of Artificial and Biological Olfaction. More information is available on the project's website.

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News from NoE PATENT-DfMM: Technology Roadmapping for Packaging of MOEMS and RF MEMS

The first roadmapping event of the Network of Excellence "Design for Micro & Nano Manufacturing - PATENT-DfMM", hosted by HWU (16 Feb 2006, Edinburgh), was a great success. With more than half of the 30 participants coming from industry, technological trends, bottlenecks and investment opportunities in packaging of MOEMS and RF MEMS were collected and discussed in small working groups. The workshop was viewed as innovative and very useful by all participants and a lot of progress was made during this

meeting. The transcription process into a roadmap format through the project team has begun.

The second meeting will be held at the Fraunhofer IZM Berlin in Germany on 8 Jun 2006 – further active contributors are welcome to attend. For more information please visit our website.

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PATENT-DfMM is also organising a panel discussion at DTIP (27 Apr) on "Design for Reliability and Test of Microsystems" with key industry panelists.

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NEXUS News is provided to NEXUS members and other interested members readers by the NEXUS Association.



The NEXUS Association is partly funded through the NEXUSPLUS project within the EC IST programme in FP6 to:

- Disseminate and cross-fertilise between FP6 Integrated Projects and Networks of Excellence.
- Increase ACC participation in NEXUS activities and within EC FP6 projects.



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NEXUS Membership

NEXUS Membership is open to all companies and institutes, worldwide, that are able to contribute expertise in areas relevant to microsystems technology.

To apply for membership, complete the online questionnaire for the NEXUS Who's who on the NEXUS website:

www.nexus-mems.com

Membership is free of charge!