

DfMM R&D Projects Launched

Being an FP6 Network of Excellence, PATENT-DfMM has a very flexible approach to distributing budgets within the project. In an annual (internal) review, which is supported by the Industry Advisory Board (IAB), priorities for the next period will be set. Internal calls for project proposals will then be launched throughout the year. The following internal projects have been launched recently as part of the PATENT-DfMM research and integration activities:

- Design for Test (DfT) for Biosensor and for Biosensor Interface
- System Simulation of Micro-Electronic Fluidic Arrays
- Quality Factor measurement and reliability for MEMS resonators
- MEMS Testing through Bias Superposition
- Benchmarks for MEMS testing
- Modelling and testing of micro-engineered cooler for microelectronics packaging
- Mechanisms of formation of preferential flow paths in microcirculation vessels for BIOMEMS
- Review of optical simulation and modelling techniques for MOEMS
- Simulation of the stiction effect in the metal-to-metal resistive contact occurring in MEMS switches
- Fault Modelling and System Simulation of Flow-FETs
- Methodology to assess the impact of packaging on MEMS components
- Reliability of M(O)EMS in harsh conditions
- Reliability of MEMS basic movable structures

- Methodology and high level design of failure modes of MEMS
- Input for materials data bases
- Failure mode database
- MEMS testing by electro-thermal excitation
- Scoping study for future programme to "Demonstrate a methodology for reliable, packaged Micro&Nanosystems"

More information will be available from the PATENT-DfMM website.

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MACROS Project to Provide Behavioural Models Including Non-linear Effects

University of Lancaster - partner in PATENT-DfMM - is involved with Dolphin Integration and ST Milan in a European project called MACROS. In this project, behavioural models including non-linear effects are developed, validated against measurements and integrated into a library. All the models of the library will be available with an EDA environment extended to support advanced VHDL-AMS language features. The designer will not only be able to model and simulate the ideal (fault-free) MEMS behaviour, but also the influence of package induced effects, pre-stress, mode coupling and

failure modes of MEMS structures within the complete MEMS in Dolphin's Mixed Signal, Multi Level and Multi Domain simulator SMASH.

For more information about MACROS project, please visit:
www.dolphin.fr/projects/macros/index.php

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First DfMM Summer School Attracts Industry Participants

The first training event for the PATENT-DfMM network of excellence was held at ISLI, Livingston, Scotland, 13-15 September. Over the 3-day programme, 30 delegates from around Europe were presented with a variety of interesting MEMS-related tutorials and presentations from research partners involved in the network. The themes covered MEMS fundamentals, failure modes, modelling and test techniques, through to packaging effects, and included an opportunity to

try various CAD tools and talk to some of the experts in the DfMM field. In addition to academics and research students, the audience included industrial delegates; many of these expressed interest in the topics, which are being developed into longer training courses.

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DfMM News is provided to mst-news readers by the project "Design for Micro & Nano Manufacture (Patent-DfMM)", a Network of Excellence funded by the European Commission DG INFSO E5 within the Information Society Technologies (IST) Programme of FP6.



The NoE Patent-DfMM aims to establish a collaborative team to provide European industry with support in the field of "design for micro nano manufacture" to ensure that problems affecting the manufacture and reliability of products based on micro nano technologies (MNT) can be addressed before prototype and pre-production.



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