

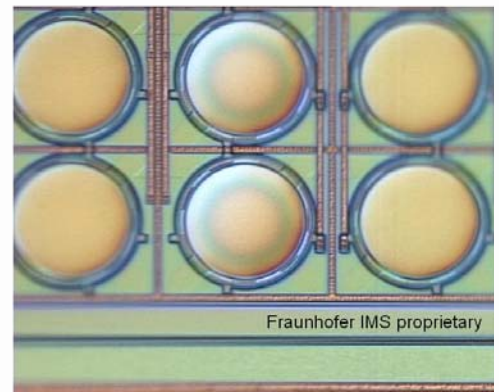
Reliability of MEMS basic moveable structures

Purpose:

The project was focused on some basic moveable structures (membranes, cantilevers) of MEMS, covering two types of objectives from PATENT-DfMM ones: i) Collating data referring to MEMS basic moveable structures, about failure modes, test structures, instrumentation for characterization and testing; ii) Performing joint research activities for building new test structures and studying new failure modes for these MEMS basic moveable structures. The main goal was to build a virtual laboratory on reliability.

Partners involved

- IMT-Bucharest (IMT),
- IMEC Leuven (IMEC),
- IEF - University Paris-Sud (IEF),
- Fraunhofer IMS Duisburg (IMS),
- LAAS Toulouse (LAAS),
- Politecnico di Milano (POLIMI),
- CEA-LETI Grenoble (CEA)
- Technical University of Warsaw (WUT),
- Budapest University of Techn.&Econ. (BUTE)



Surface micromachined pressure sensor cells with polysilicon diaphragm (IMS)

Summary of results

- Collating information about moveable membranes and cantilevers: failure modes, instrumentation for failure analysis & reliability testing, test structures allowing to perform reliability testing, design rules (*All partners*)
- Preliminary testing of new test structures for moveable membranes and cantilevers (*POLIMI, IMEC, IMS, CEA, LAAS, IMT*)

Publications: J.of MicroElectroMechanical systems, Microelectronics Reliability, Proc. of Eurosime, Proc.of Int.Conf.of Semiconductor (CAS), Proc. of MIEL...

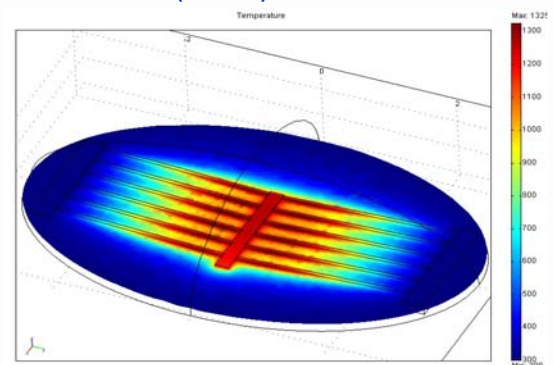
Offer to industry

- Consultancy in DfR for moveable membranes and cantilevers
- Virtual Laboratory on Reliability

Contact

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Project status: Phase 2 ended in November 2005



Electro-thermo-mechanical actuator with 6 V-shaped beams. Distribution of temperature in the device and in the surrounding air