

## MEMS failure modes database

### Objectives

- To collect and categorize MEMS failure modes from literature and PATENT-DfMM partners.
- To set up a database of MEMS failure modes.

### Partners involved and roles

- HWU (MEMS failures collection, FMEA, Database design).
- ISLI (MEMS failures description, categorization and FMEA)

### Summary of results

- Data base design based on WIKI concept.
- MEMS failure modes database

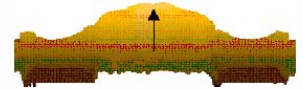
### Offer to industry

- MEMS failures and FMEA methodology to assess failures

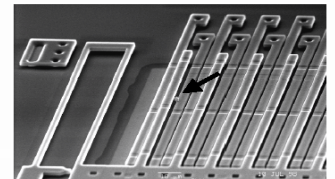
**Contact** Dr Marc Desmulliez  
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### Project status, date:

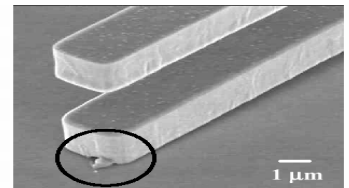
- New person been recruited for consolidation of database.
- Data base will be ready by End of summer 2006.



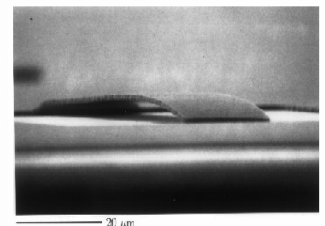
Buckling in gold bridge of a RF switch at 100°C



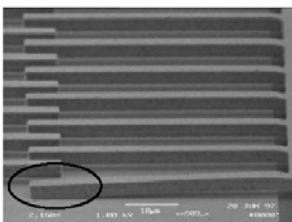
Particle obstruction in comb drive of an inertial sensor



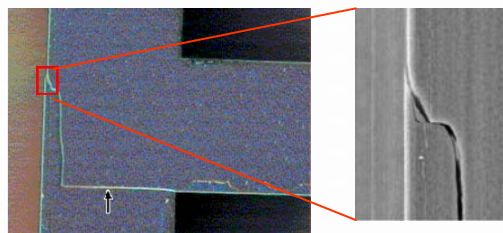
Micro welding-Comb finger short bridging to substrate



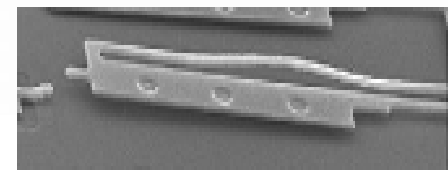
Residual stress in cantilever beam



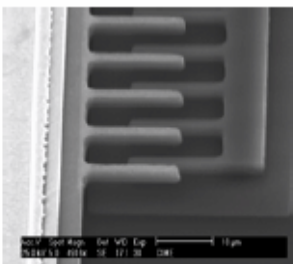
Stiction-Stuck finger on comb drive



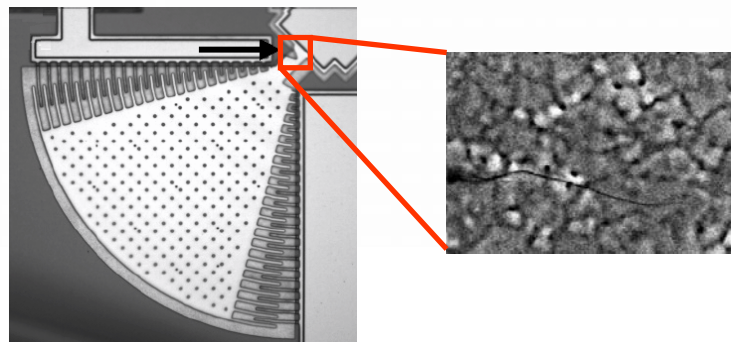
Vibration induced cracks in a single crystal silicon supported beam (left) and close up (right)



Back bending failure in thermal actuator



Stiction after etching and post release.



Resonant cantilever structure Fatigue crack at notch caused by cyclic loading