Fraunhofer IPMS

Characterization and Test of MEMS/ MOEMS

Test of a microdisplay at wafer level.

Fraunhofer IPMS Dresden researches, develops and manufactures innovative intelligent microsystems (MEMS / MOEMS). These are micromechanical optical systems that combine sensors, actuators, digital and analog circuit components.

The combination of electrical and non-electrical properties in these systems is a challenge for testing and characterization. In addition to the classic electrical test methods, non-electrical, primarily optical measurement and stimulation methods are used. The tests are carried out under class 10 clean room conditions. Planning, test program development and test execution are carried out in close coordination and continuous feedback with our customers.

The integration of special devices such as laser vibrometers, spectrometers, interferometers or colour measurement cameras allows the combined electrical and mechanical/optical characterization of these microsystems. The electrical control is carried out with mixed-signal test systems, which enable convenient program creation, great flexibility and high test density.

Our test solutions are usually developed on a project basis as part of product development and, at the customer's request, are ready for series production.

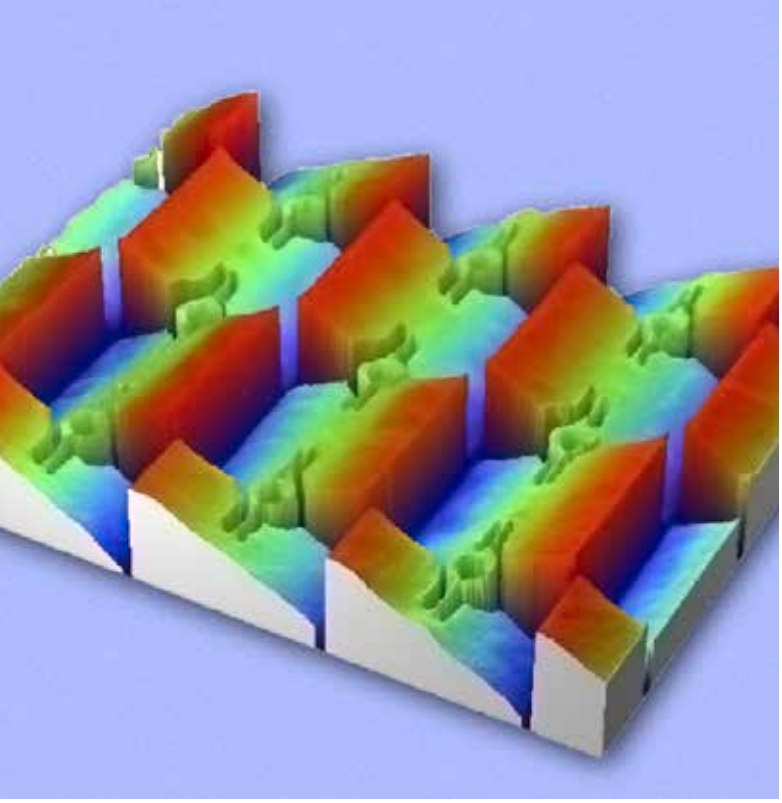
To support SMEs, however, we also offer test development and testing as a separate service for small and medium quantities.

Contact

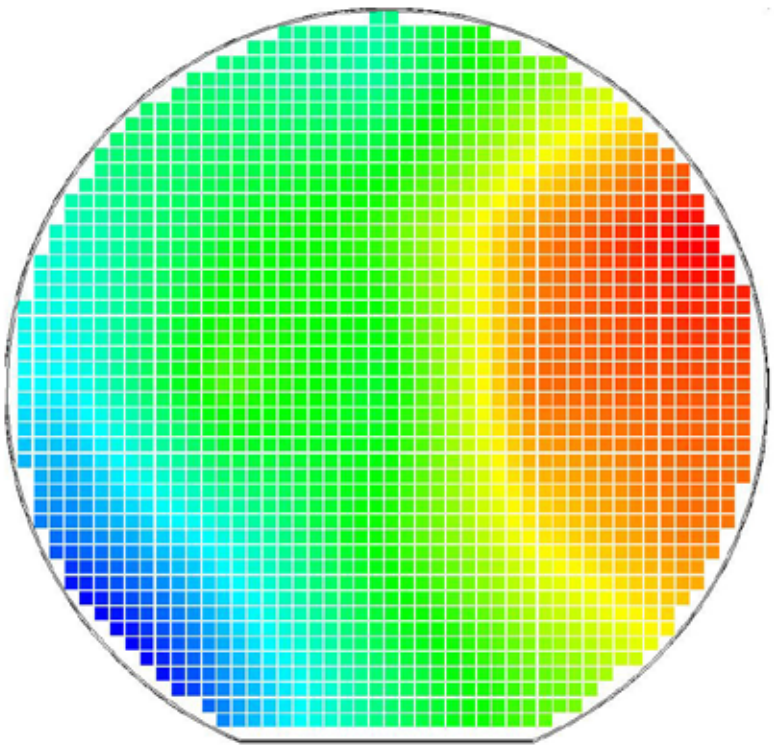
Volker Bock
+49 351 8823-251
volker.bock@ipms.fraunhofer.de

Fraunhofer Institute for
Photonic Microsystems IPMS
Maria-Reiche-Str. 2
01109 Dresden, Germany

www.ipms.fraunhofer.de



Topology of a micromirror array (WLI data).



Thermographic representation of a wafer with RFID temperature sensors to be calibrated.

What we offer:

To characterize the complex components and technologies, Fraunhofer IPMS is able to perform the following measurements (in-/ex-situ) both at wafer level and on the individual component:

- Mixed-signal testing
- Parametric test system
- Electro-optical test system for micro-displays and sensors
- Sensor-actuator test system
- Non-electrical test
- Optical inspection
- CV analysis
- Characterization of the integrity and reliability of insulators

Best practice projects

- Calibration of temperature sensors at wafer level
- Tests of microdisplays at wafer level
- Test and characterization of scanner mirrors
- Final test of sawn wafers for optical sensors
- Final test of pH value sensors

Equipment (excerpt)

- Mixed signal tester Advantest Falcon M3670 / ST-M3650
- Electro-optical test system PA300, LMK98-4 / USB4000
- Automatic optical inspection system PA200
- Sensor-actuator test system PA200, Laserstimuli
- Semiconductor characterization system K4200