

Researchers	217
Post docs	13
PhD students	20
	250



MM area

FCS – Physics & Chemistry of Surfaces and Interfaces

MIS – Microsystems

IT area

SRA – Automated Reasoning Systems

SSI – Interactive Sensory Systems

TCC – Cognitive and Communication Technologies



The department designs and realises silicon microsystems, especially:

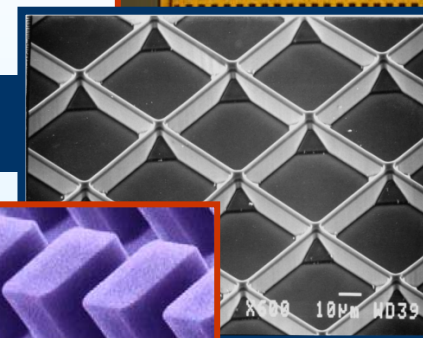
- silicon particle detectors;
- sensors for bio-medical and environmental applications;
- micro-electro-mechanic systems (MEMS) for industrial and consumer applications;
- electro-optic microsystems for vision and non-destructive measurements.

MEMS Technological fabrication modules

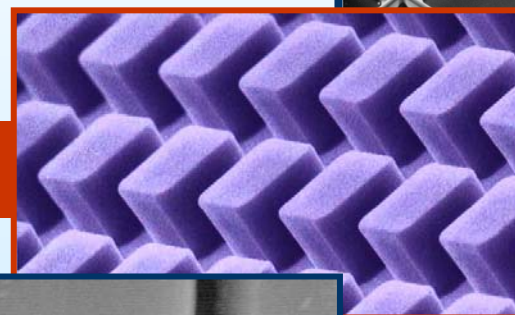
Composite suspended membranes



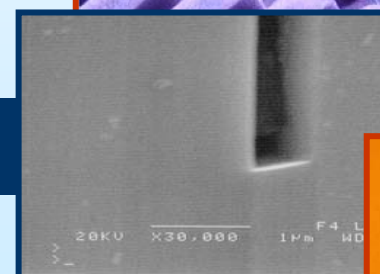
Silicon anisotropic etching with TMAH solution



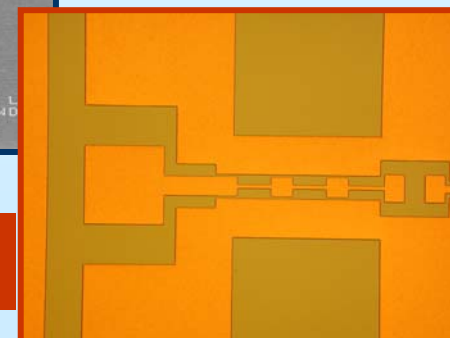
Lithography with thick film of photoresist



Low temperature Wafer Bonding



Gold Electrodeposition



Fabrication: the Lab. covers an area of 500 sqm (250 of which are in class 10)

- Furnaces 11 horizontal furnaces (diffusion, LPCVD depositions, Si₃N₄, Polysilicon, TEOS, BPSG and LTO)
- Implanter “Varian E 220 medium current”
- Lithographic Sector : Mask Aligner A “Karl Suss MA 150 BSA” and Resist processing systems “SVG 8600” and “EVG 150”.
- Etching Sector: Wet etching and Dry etching (Aluminium, Silicon dioxide Silicon nitride, Polysilicon etching)
- Metalization: Varian 3180 sputtering and Ulvac EBX-16C evaporator
- Dicing Disco DAD 2H-6T

Testing

- HP 4062UX + EG2001CX - custom modified for double-side wafer
- Karl Suess PM8 - custom modified for double-side wafer testing

Mask Aligner A “Karl Suss MA 150 BSA”

Resist processing systems “SVG 8600” and “EVG 150”.



Wet etching



Dry etching

Aluminium, SiO_2 , Si_3N_4 and Poly



Varian 3180 sputtering



Ulvac EBX-16C evaporator





Furnaces 11 horizontal furnaces

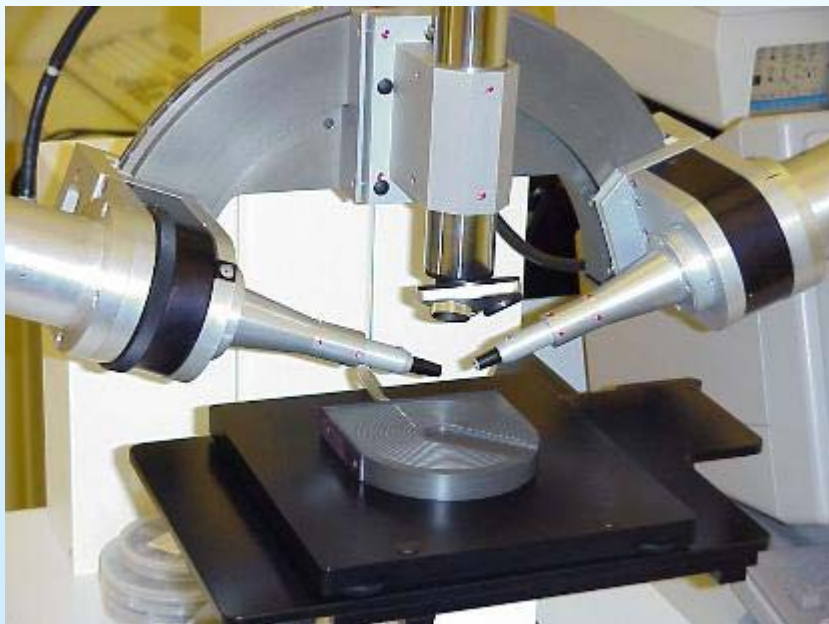
diffusion, LPCVD depositions, Si₃N₄, Polysilicon, TEOS, BPSG and LTO



Varian E 220 medium current



- Olympus MX50 microscope
- Leitz MPV-SP Interferometer for thickness control.
- 4 point Napson RT8-8 for resistivity control.
- Plasmos SD 2300 Ellipsometer for refraction index control



Ultrasonic Gold Ball Bonder
(K&S 4124).



Disco DAD 2H-6T



Automatic wafer-level tester

cassette-to-cassette, double-side testing, automatic sorting & inking, HP 4062UX + EG2001CX - custom modified for double-side wafer testing

Manual Probe Station

Karl Suess PM8

Electro-optical test system



Now in clean room

- PECVD STS for nitride and oxide deposition
- Tegal 6510 dry etch system for metal and poly&nitride

Plan for the next tree years

- Stepper
- wafer bonder
- dry etch system for metal
- deep RIE
- Boron deposition from solid source