Metallization

Processes performed at Metallization

Techniques

Metal thin films of a variety of materials can be deposited by Physical Vapor Deposition techniques on either DC and DC/RF sputtering systems, or on thermal and e-beam evaporation systems.

Surface: Around 93 m^2

Available technologies

- *Physical Vapor Deposition (PVD): Sputtering and Evaporation.*

Equipment

1)Sputtering:

a) KENOSISTEC KS800H:

- Sputtering system to deposit metallic layers on 100 mm or 150 mm wafers.
- Process chamber with three (200 mm) circular planar magnetron cathodes.
- Available targets: $Al_{99.5}/Cu_{0.5}$ and Ti.
- Load lock chamber with semi-automatic loading system.
- DC power and RF for sputter etching.
- To process no-CMOS wafers.

b) **Material Research Corporation-MRC 903:**

- Sputtering system to deposit metallic layers on a 30 x 30 cm^2 pallet surface (up to nine 100 mm wafers or up to four 150 mm wafers).
- Process chamber with three cathodes (two are rectangular planar magnetron-type and the other is a rectangular planar diode).
- Available targets: Au, Ni and Ti.
- Load lock chamber with semi-automatic loading system.
- DC power for Ti/Ni and RF power for Au. Also RF for sputter etching.
- Aimed at no-CMOS wafers.

c) **KENOSISTEC KS500C:**

- Sputtering system to deposit metallic and semiconducting layers on 100 mm or 150mm wafers.
- Process chamber with three cathodes (75 mm) magnetron circular planar in confocal configuration.
- Available targets: W, Ti, Ta, Si and $TaSi_2$
- Load lock chamber with semi-automatic loading system.
- DC power supply source plus RF power supply for one cathode (to deposit Si). Possibility to sputter etching (RF).
- To process no-CMOS wafers

d) LEYBOLD HERAEUS Z-550:

- Sputtering system to deposit metallic layers on 100 mm wafers.
- Process chamber with a circular planar magnetron cathode.
- Available targets: Al, Al$_{98.75}$/ Cu$_{0.5}$ /Si$_{0.75}$ and TaSi$_2$.
- Load lock chamber and manual loading system.
- DC power supply source. Possibility to sputter etching (RF).
- Possibility to process CMOS or no-CMOS wafers (no-CMOS without etching).

e) KENOSISTEC KS800HR:

- Sputtering system to deposit metallic and non-metallic layers on 100 mm, 150 mm wafers.
- Process chamber with four (200 mm) circular planar magnetron cathodes.
- Available targets: Al, $Al_{99.5}$/$Cu_{0.5}$, Ti, W, $Al_{98.75}$/ $Cu_{0.5}$ /$Si_{0.75}$, Si, AlN, TiN, Si_3N_4, SiO_2
- Load lock chamber with semi-automatic loading system.
- Possibility to heat samples up to 400 ºC
- Pulsed DC and RF power supply sources, plus RF for sputter etching.
- Possibility to process CMOS and no-CMOS wafers (no-CMOS without etching).

f) BIO RAD E-5000 Polar Division:

- Sputtering system to deposit gold layers for scanning electron microscopy.
- Possibility to change distance and current.
- Stopwatch to time control.

2)Evaporation:

a) OERLIKON UNIVEX 450B:

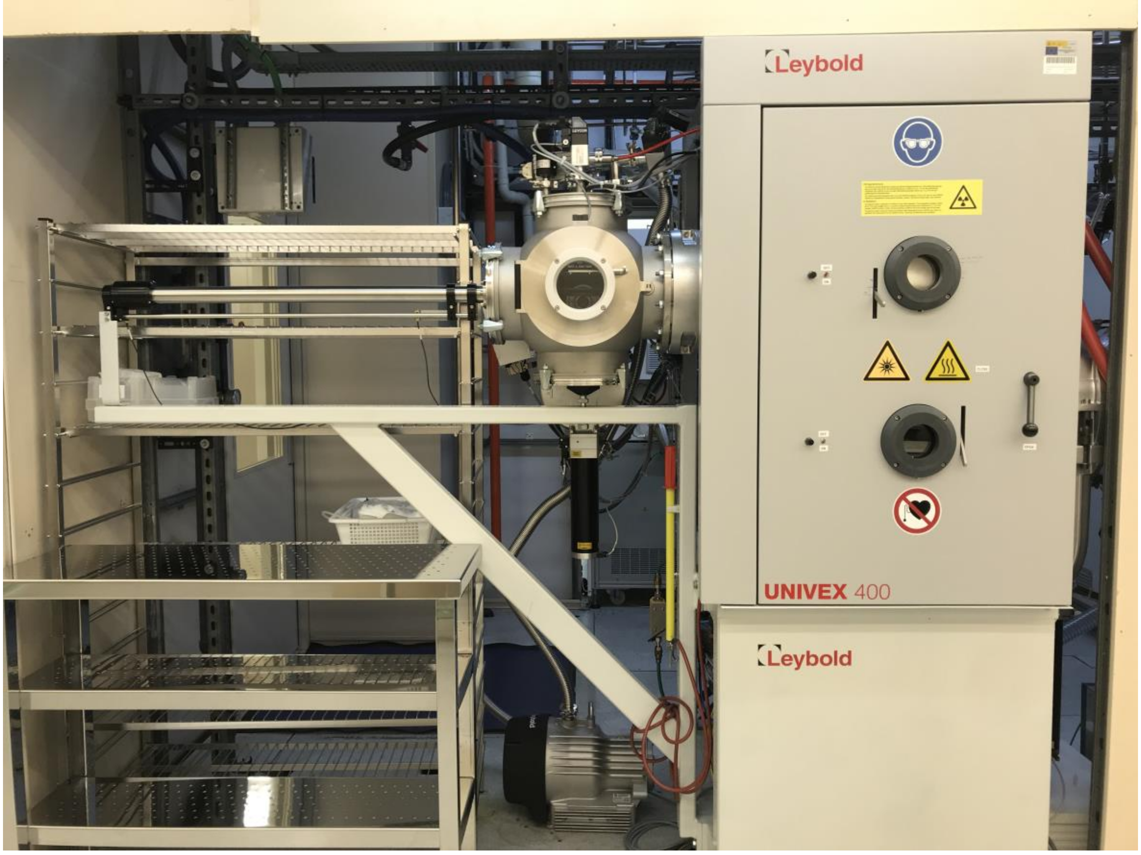
- One electron gun source with four pockets and two thermal sources.
- Maximum sample area size: 150 mm.
- Process chamber capacity up to four wafers (Manual loading system without load lock chamber)
- Available materials: Ag, Al, Al_2O_3, Au, B, C, Cr, Cu, Fe, Ge, ITO, Mo, Nb, Ni, Pd, Pt, Sn, Ta, Ti, W, ZnO and Zr.
- Possibility to heat samples up to 500ºC.
- Residual gas Analyzer.
- Available deposition in low O_2 pressure.
- To process no-CMOS samples.

b) KENOSISTEC KE500E:

- One electron gun source with four pockets.
- Maximum sample area size: 150 mm.
- Process chamber capacity limited to one wafer (manual loading system without load lock chamber).
- Available materials: Al, Cr, Ti.
- Exclusively to process CMOS samples.

c) LEYBOLD UNIVEX 400:

- One electron gun source with eight pockets
- One i-gun source.
- Maximum sample area size: 150 mm.
- Process chamber capacity of one wafer with load lock chamber.
- Possibility to cool samples between -20 and 100 ºC.
- Possibility to sample rotation during deposition
- Available materials: In test: Ti, Au, Al, Pt (Testing Cr and Ni)
- To process no-CMOS samples.



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