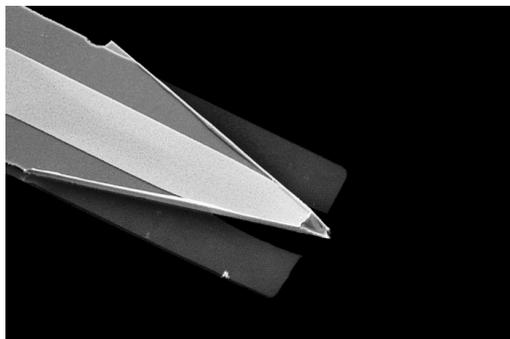


Micro and Nanofabrication Clean Room Techniques and equipment

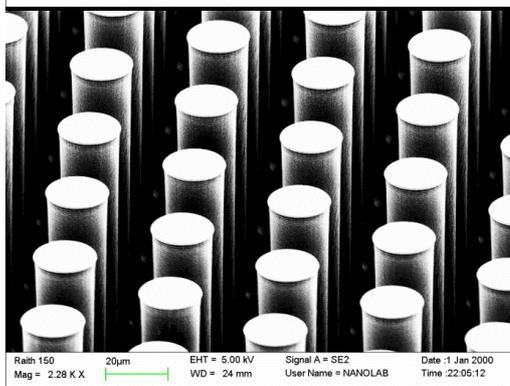
DRY ETCHING

Surface: 120 m².
Class 1000

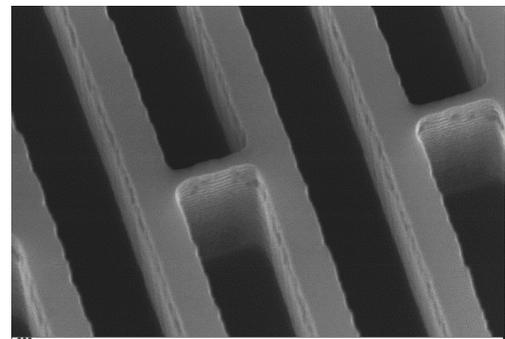
- Silicon Etching (Si, Doped Poly) Anisotropic and isotropic dry etch
- Chemistry: Cl₂, HBr, SF₆, C₄F₈
- Metal Etching (Al,W,Ti,TiN,Cr)
- Chemistry: Cl₂, BCl₃
- Dielectric Etching (SiO₂, Si₃N₄)
- Contact (Poly C/T, Metal C/T, Via)
- Chemistry : fluoro-compounds(CF₄, C₄F₈, CHF₃, C₂F₆, CH₄)
- ALD thin films (HfO₂,Al₂O₃ and TiO₂)
- Chemistry: Cl₂, BCl₃



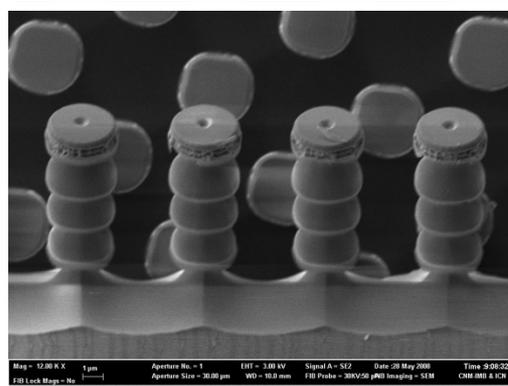
Rath 150 10µm EHT = 7.00 kV Signal A = SE2 Date :25 Jan 2000
Mag = 3.92 K X WD = 11 mm User Name = NANOLAB Time :3:32:24



Rath 150 20µm EHT = 5.00 kV Signal A = SE2 Date :1 Jan 2000
Mag = 2.28 K X WD = 24 mm User Name = NANOLAB Time :22:05:12



200 nm EHT = 10.00 kV Signal A = In.Lens Photo No. = 46095 Date :5 Mar 2020
Mag = 100.00 K X WD = 5.7 mm Aperture Size = 30.00 µm Time :12:04:58 IMB-CNM-CSIC



Mag = 12.00 K X 1µm Aperture No. = 1 EHT = 3.00 kV Signal A = SE2 Date :28 May 2008 Time :9:08:22
FIB Probe = 30kV/50 pA/ Imaging - SEM CH5 002 & 124

Equipment

- Five high-density plasma-etching devices (RIE-ICP) suitable for 4 and 6-inch wafers.
- Two CCP, one of them MERIE

ALCATEL GIR-160



- Parallel plate RIE reactor, 13.56 MHz
- Manual single chamber for 4" and 6" wafers
- SF₆, CHF₃, CF₄, O₂, He, N₂
- Etching SiO₂, Si₃N₄, Si, poly-Si and SiC

APPLIED MATERIALS PRECISION 5000MARK II



- M.E.R.I.E., 13.56 MHz
- Automatic cluster 3 chambers
- 25 wafers 4" and 6"
- Optical EPD
- HBr, Cl₂, O₂, He, CHF₃, Ar, CF₄, C₂F₆, C₄F₈
- Etching poly-Si, oxinitride and ALD thin films (Al₂O₃, HfO₂ and TiO₂)

ALCATEL 601 E



- DRIE –ICP
- Automatic single chamber 4” wafers
- SF₆, C₄F₈, He, O₂
- Bosch process system for deep-vertical etching of silicon
- Cryogenic process at -110°C
- etching , poly-Si, and Deep Si

ALCATEL AMS 110 DE



- DRIE - ICP
- Automatic single chamber 4” wafers
- Working in self-service mode
- Bosch process system for deep-vertical etching of silicon
- OpticalEPD
- SF₆, C₄F₈, He, O₂, CH₄, Ar
- Etching: Silicon, dielectrics, polymers, ALD thin films (Al₂O₃, HfO₂ and TiO₂)dry etch for wafers with contaminant metals

OXFORD S-100



- DRIE-ICP
- Automatic multichamber 4” wafers
- N₂, O₂, He, SF₆, Cl₂, HBr, BCl₃
- Etching: aluminum, SiC, diamond and photoresist stripping

SENTECH SI 500 I



- DRIE-ICP
- Automatic chamber 4" and 6" wafers
- Cl₂, BCl₃, Ar, N₂, O₂, He
- Etching: aluminum, Al₂O₃, HfO₂, TiO₂, TiN and AlN

SENTECH SI 500 II



- DRIE-ICP
- Automatic chamber 4" and 6" wafers
- SF₆, C₄F₈, He, Ar, O₂
- Etching: Si and SiC

STAFF: Roser Mas