Nanoquest IBE

Ion Beam Etching platform for Advanced R&D

Nanoquest Pico

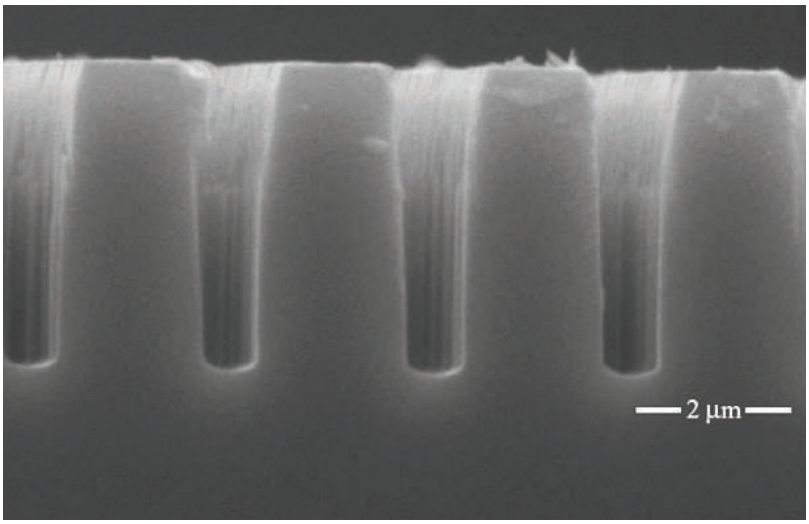
- Compact, low cost platform
- Substrated ≤ 3" ϕ
- DC or RFICP ion source
- Actively cooled stage
- Substrate rotation and tilt
- Inert or reactive gas configuration
- Load lock option, manual (top load)
- Wireless laptop interface option

IntlVAC THIN FILM

NANOQUEST

ION BEAM ETCHING (IBE)

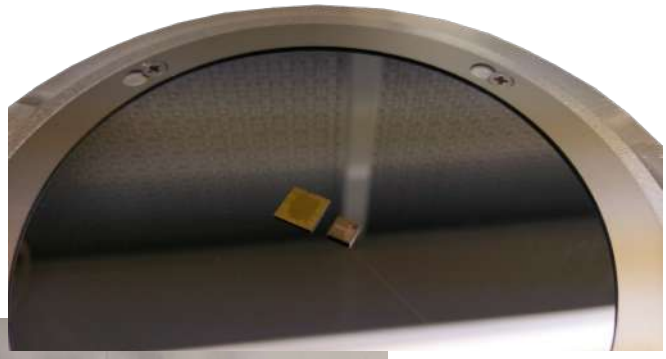
Intlvac's Nanoquest ion beam etch (IBE) platform employs state-of-the-art features and proprietary design to meet today's nanofabrication requirements. With its inherent precision and ability to dry etch any material, the Nanoquest technology uniquely fits the need to repeatably remove diverse materials which are designed into innovative MEMS, optical, sensing, photonic, RF/ microwave, passive power components, biocompatible, and memory devices.



SEM Cross-section of a GaAs element.

EXAMPLE OF SAMPLE PREPARATION

1. **Mounted sample to Si wafer with special conductive adhesive**
2. **Wafer mounted in IBE stage chuck**
3. **Chuck loaded onto stage**



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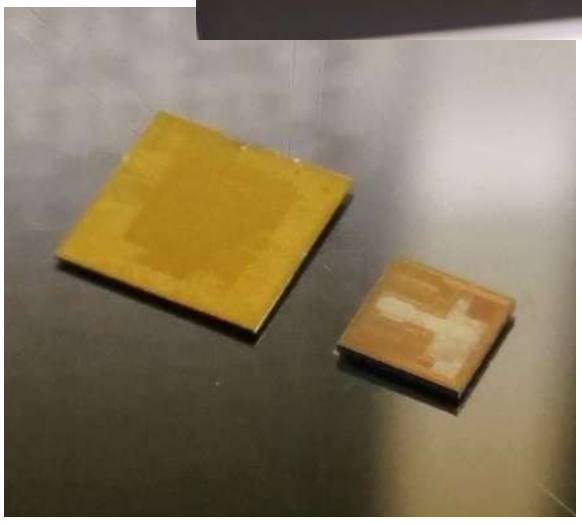

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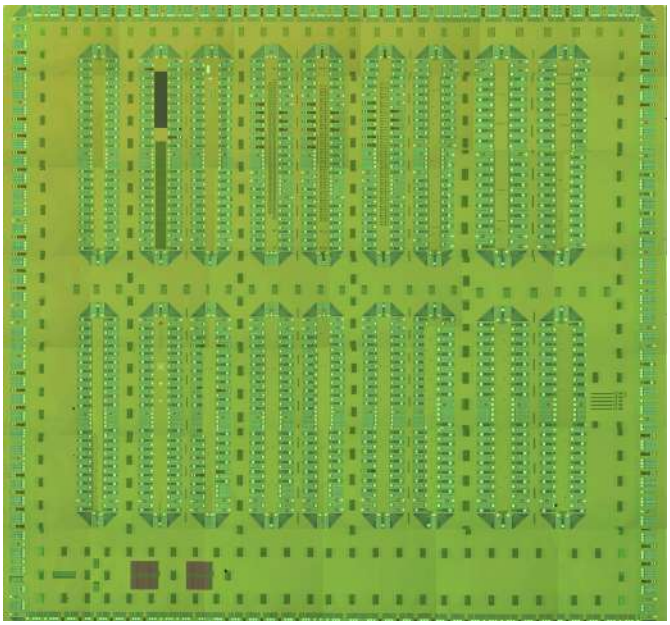
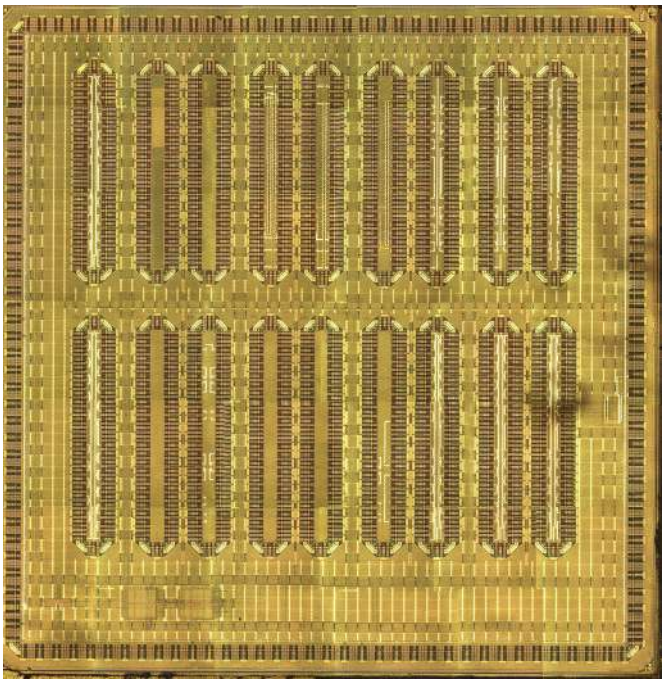
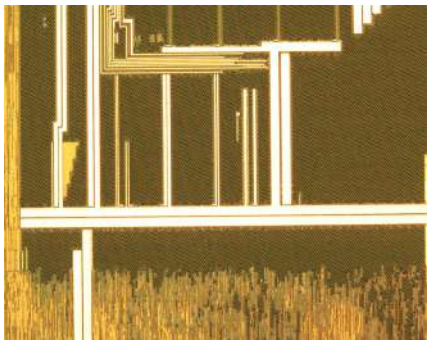
IC DELAYERING FOR FAILURE ANALYSIS



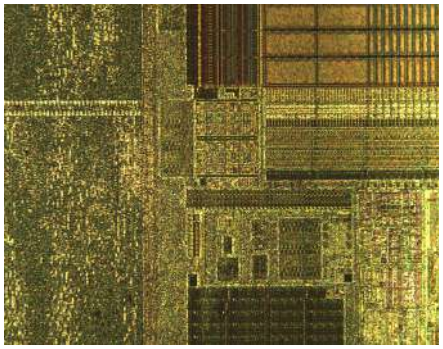
Full Chip - Before Etch



Full Chip - After Etch

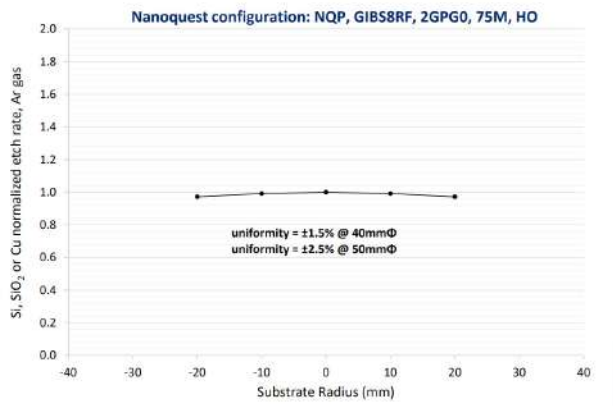


Section of Chip - Before & After



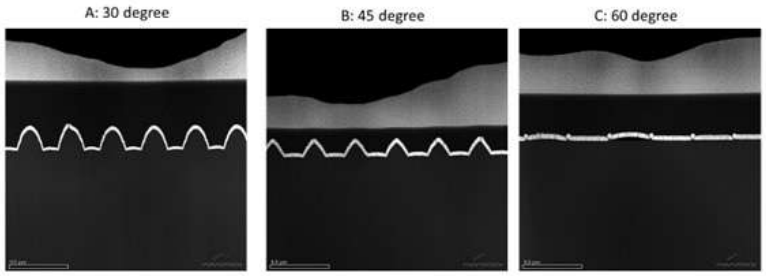
Features

- Uniformly delayers full IC chip area
- Clean, non-contact, no damage
- Not reliant on chemistry
- Precisely removes microns of all electronic materials
- Optimization of material etch selectivity
- Ion incidence angle enables planarization
- Angstrom level resolution and repeatability
- In-situ monitoring and control

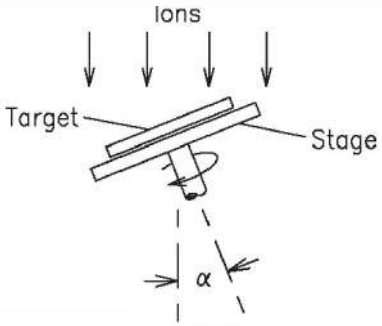


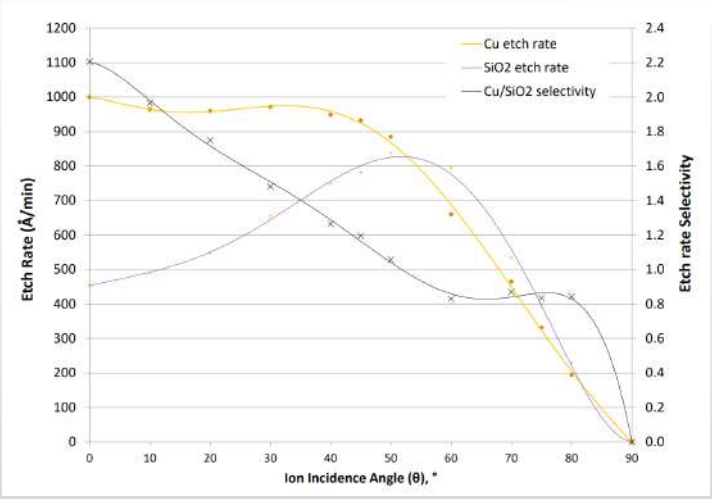
Fundamental Etch Uniformity
@ 0° Incidence Angle

Ion Beam Planarization

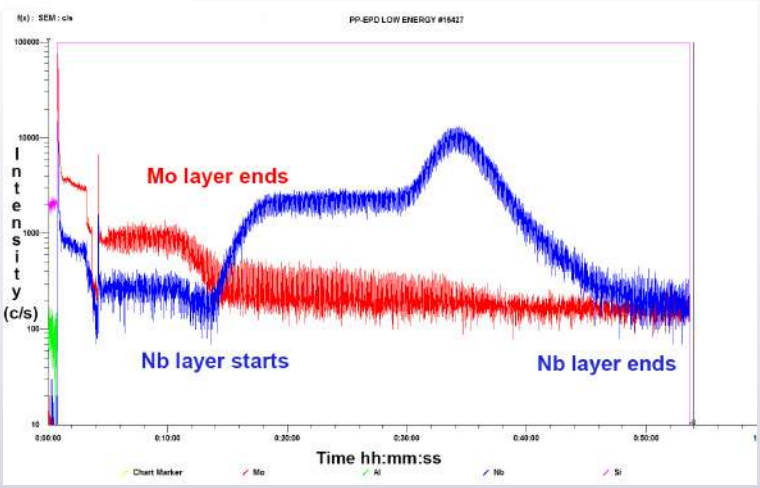


Process Result for 3 samples
with varying angles





Estimate of Etch Rate vs Ion
Incidence Angle



Example of SIMS
End Point Detection (EPD)

PROVIDING TECHNOLOGY SOLUTIONS

At Intlvac, we design and manufacture a wide variety of systems for Thin Film PVD and Ion Beam Etch. Our product line ranges from small R&D/pilot project systems to large production systems utilizing processes such as Ion Beam Etching, Sputtering, E-beam, Thermal Evaporation, Fiber-optic coating, and more! Contact Intlvac to learn more about which tool might be suitable for you.

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