scia Cube 750

LARGE AREA COATING AND ETCHING

Features & Benefits

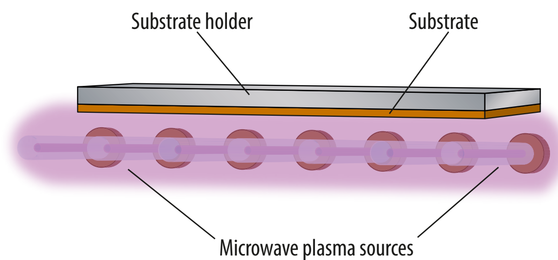
- Large area processing with an array of synchronized linear microwave sources
- Independent RF bias at substrate holder for energetic substrate bombardment
- Substrate face-down orientation for minimized particle load
- Substrate cooling (-10 °C)
- In-situ chamber cleaning process
- Full automation with vacuum load lock and atmosphere stocker system available

Applications

- PECVD Processes
  - Deposition of dielectric films (e.g. encapsulation, barrier coatings, electric insulation (SiO_2, Si_3N_4, …))
  - Optical and scratch resistant coatings (a-C:H, DLC)
- RIE Processes
  - Reactive etching and structuring of metals (Ni, Cr, Pt, …)
  - Etching of gratings and other structures in optical materials (quartz, fused silica)
  - Ashing of photoresist

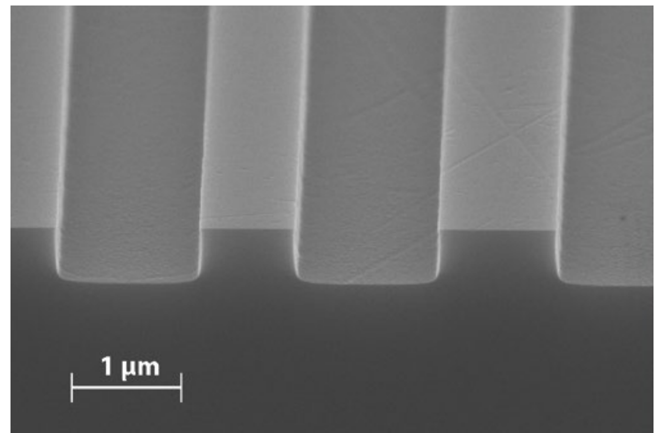
Principle

- Plasma Enhanced Chemical Vapor Deposition (PECVD) and Reactive Ion Etching (RIE)
  - Plasma of reactive gases is created by microwave sources
  - Enhanced ion bombardment with RF bias



Application Example

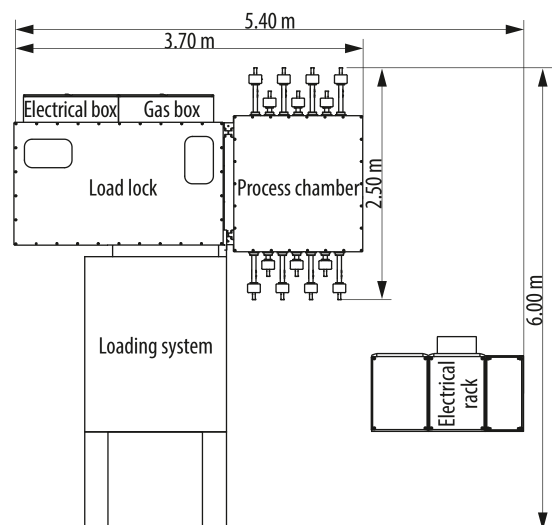
- Structuring of computer generated hologram (CGH) on a quartz sample



SEM picture with courtesy of IMS Stuttgart

Technical Data

Substrate size (up to)	750 mm x 750 mm
Substrate holder	Water-cooled, RF bias
Substrate temperature	Alternatively cryo-cooling down to -10 °C
Plasma source	8 linear microwave source (PL1300) and/or RF parallel plate arrangement, 13.56 MHz
Typical etch rates	Metals: > 5 nm/min, SiO_2: > 30 nm/min
Power supply	MW power: max. 48 kW, RF power: max. 3 kW
Base pressure	$< 1 \times 10^{-6}$ mbar
System dimension (W x D x H)	3.70 m x 2.50 m x 2.00 m (without electrical rack, pumps and loading system)
Configurations	Single chamber with single substrate load lock, optional atmospheric loading system with substrate stocking
Software interfaces	SECS II / GEM, OPC



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