

Georgia Tech MiRC Aluminum Patterning Results  
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3/6/08

## Electron Beam Lithography JEOL JBX-9300FS 100kV EBL System



## Reactive Ion Etch Plasma-Therm SLR RIE

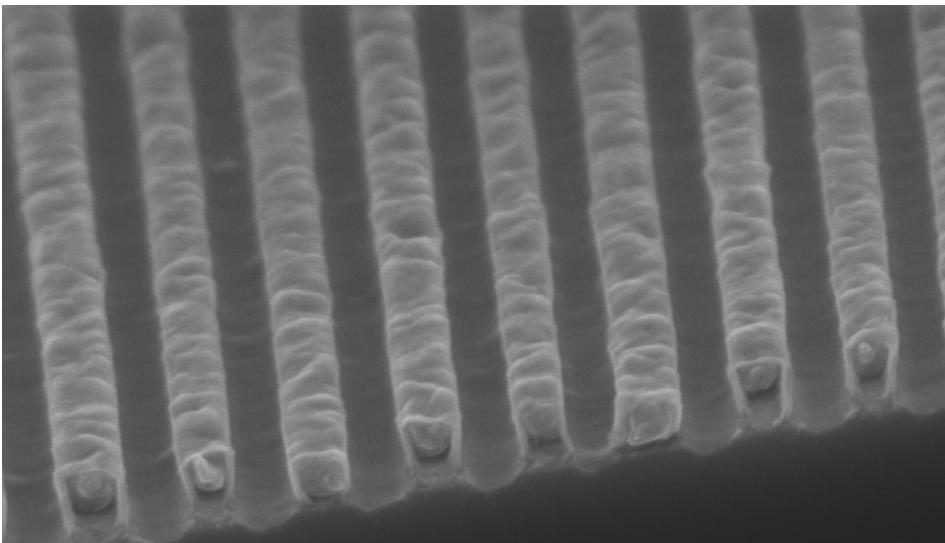


- Silicon substrate with ~1100Ang filament evaporated aluminum
- 200nm thick ZEP520 resist
  - 2:1 ZEP520:Anisole dilution
  - 3000RPM, 2500RPM/sec, 60sec
  - 180C hot plate bake, 2min
- 100nm line / 100nm space test pattern
- 2nA beam current, 8nm shot pitch
- 180uC/cm<sup>2</sup> exposure dose
- 2min immersion develop n-Amyl Acetate

- pressure = 20mTorr
- BCl<sub>3</sub> 20sccm
- Cl 8sccm
- H<sub>2</sub> 2sccm
- RF Power 225W
- 28C temperature
- aluminum etch rate ~1500Ang/min

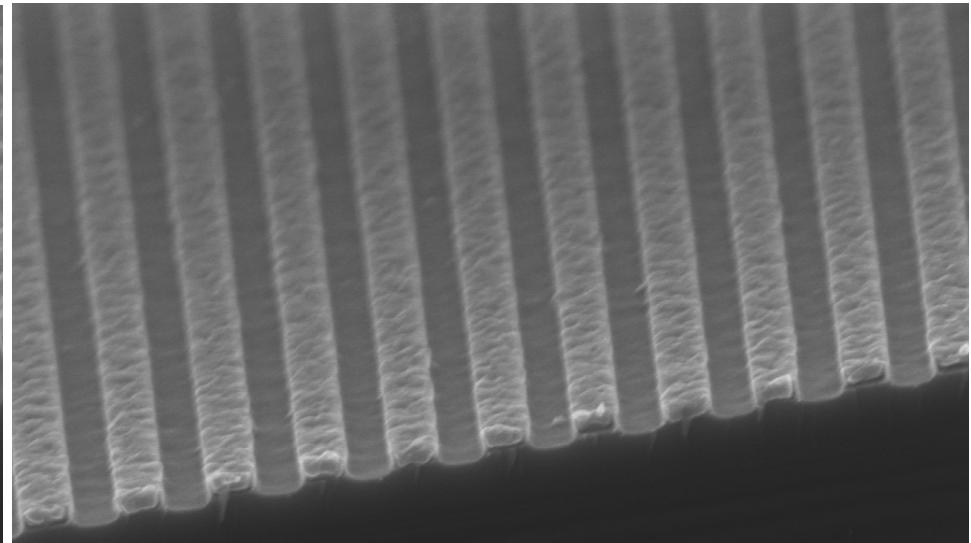
# Aluminum on Silicon

100nm line / 100nm space



100 nm  
N\_DEVLIN  
19 Feb 2008 15:03:27 Scan Speed = 1 Width = 1.692 μm 67.56 K X  
Line Int. Done N = 50 Stage at T = 0.0 ° WD = 5 mm Signal A = InLens 5.00 kV

200nm line / 200nm space



100 nm  
N\_DEVLIN  
19 Feb 2008 14:59:13 Scan Speed = 1 Width = 4.181 μm 27.34 K X  
Line Int. Done N = 50 Stage at T = 0.0 ° WD = 5 mm Signal A = InLens 5.00 kV

# Aluminum on Quartz

