chrome etching
5/24/12

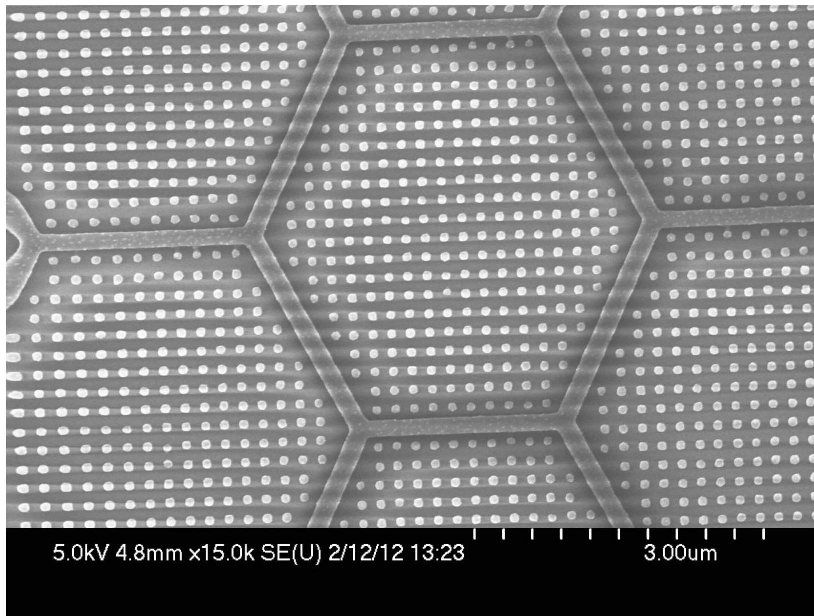
chrome etching

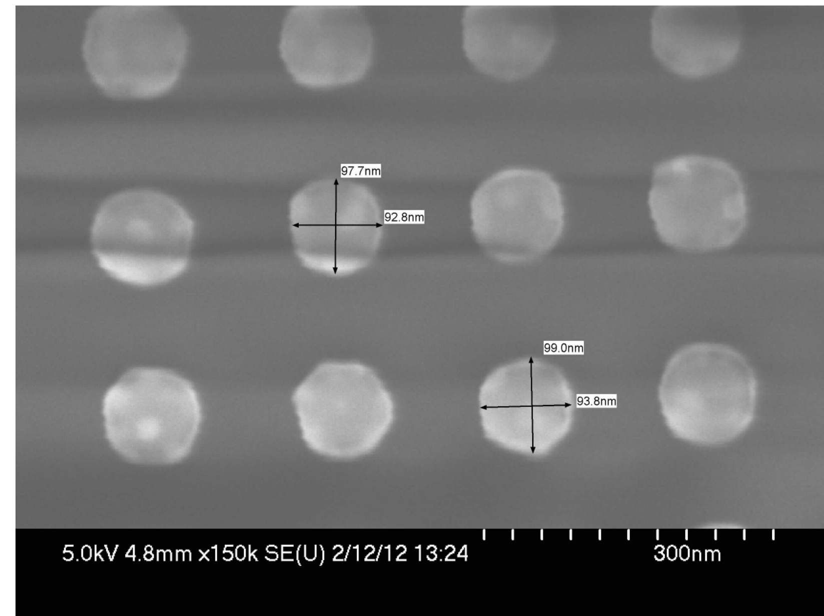
- ICP plasma etching chrome
  - could be used for making nanometer scale features on photomasks where RIE process is insufficent
  - could be used for creating a chrome “hard mask” to etch patterns where selectivity to resist is insufficient
  - could be used for nanometer scale features desired in chrome as the active device

recipe

- tool = Plasma Therm ICP
  - pressure = 10 mTorr
  - gas 1: Cl_2, 80 sccm
  - gas 2: O_2, 26 sccm
  - gas 3: H_2, 18 sccm
  - RIE power = 50 W
  - ICP power = 500 W
- result
  - Cr etch rate ~ 12.2 Ang/sec
  - ZEP520 etch rate ~ 58.8 Ang/sec
  - selectivity Cr:ZEP520 ~ 0.21

Cr etch result





- pattern above is Cr on quartz substrate
- 100 nm diameter posts in 78 nm thick Cr
- posts in ZEP520 were created by exposing area around posts

(a negative image exposure approach)