Silicon ICP etching with HSQ resist

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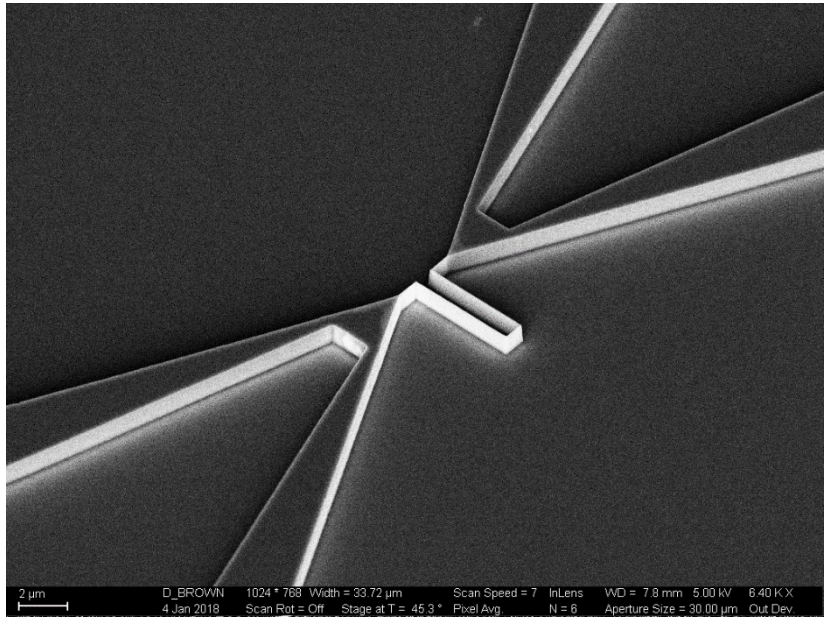
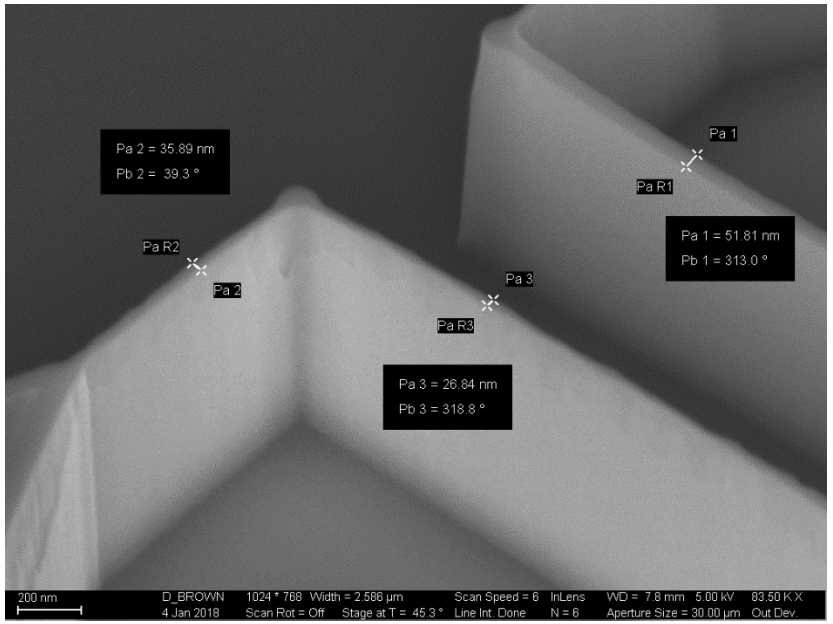
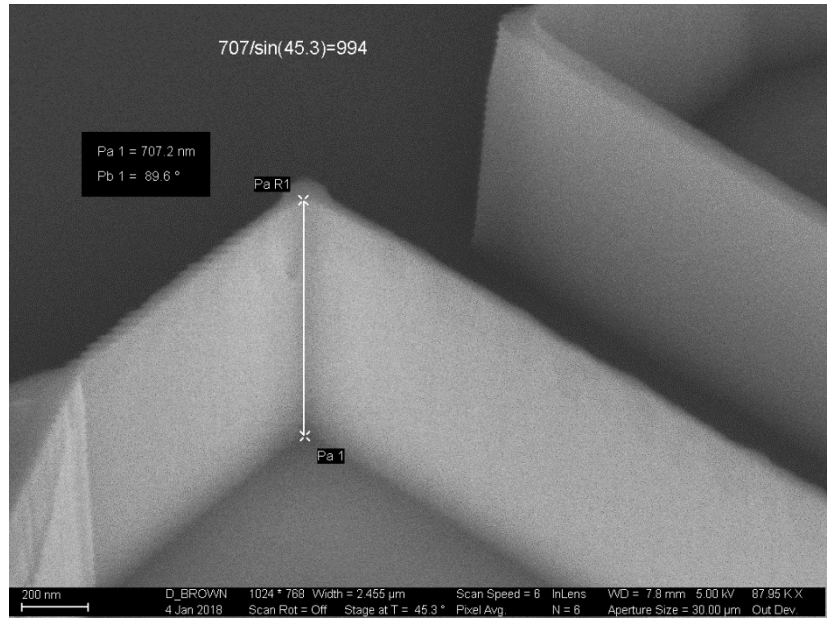
ICP Etch Process

- etch tool = Plasma-Therm ICP
- recipe
  - pressure = 5 mTorr
  - 50 sccm Cl2
  - coil 125 W
  - plate 75 W
  - (typical DC Bias = 450V)
- etch rates
  - silicon etch rate = 87 nm/min
  - HSQ etch rate = 13 nm/min
  - selectivity = 6.7

SEM results

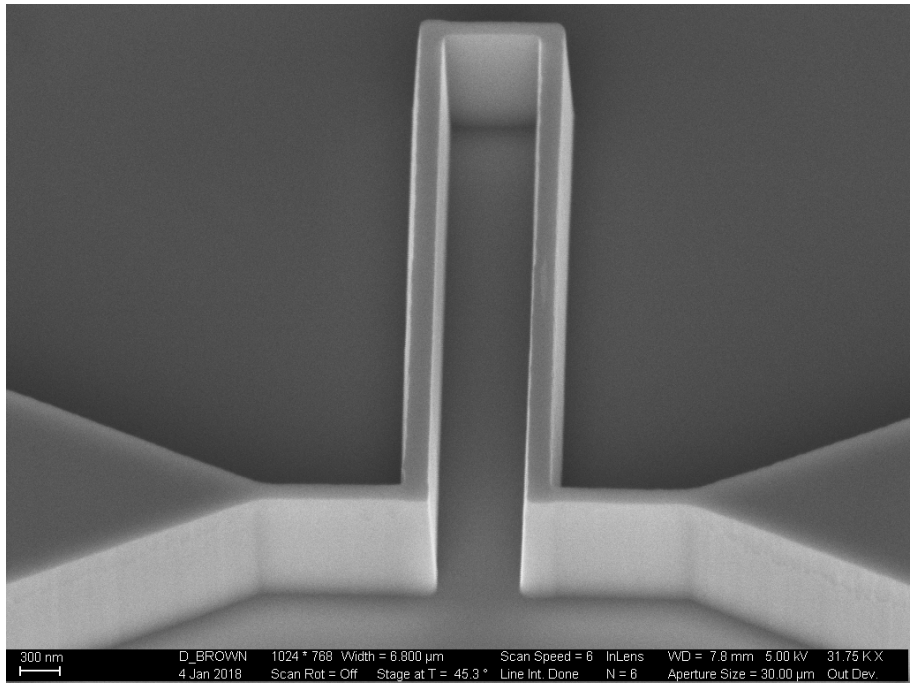


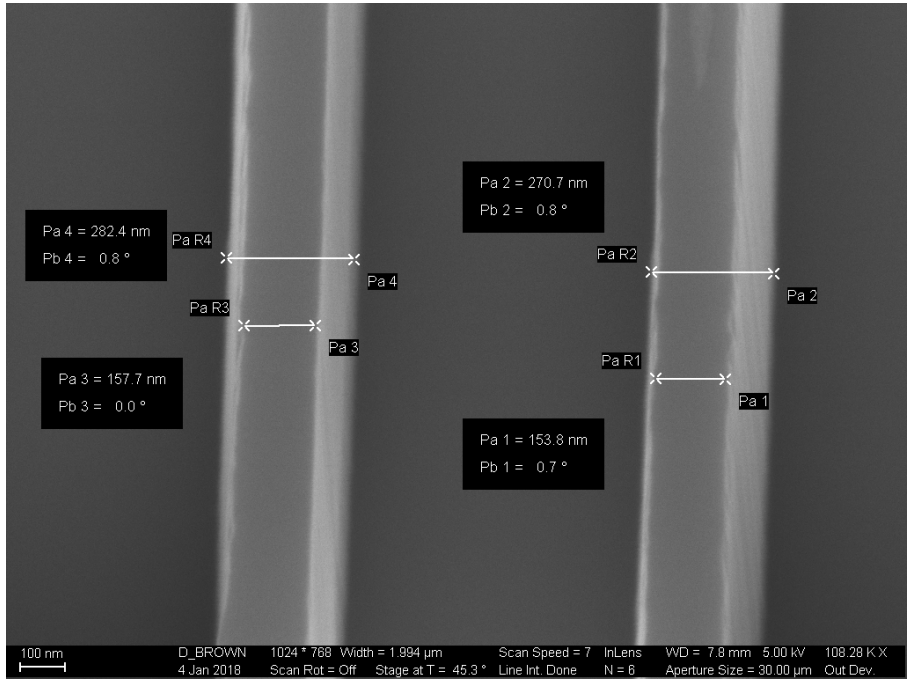


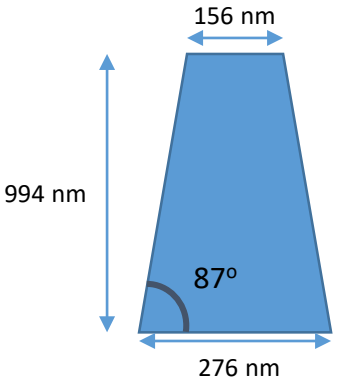


- serpentine resistor pattern with four electrode connections
- minimum linewidth 27 – 52 nm
- etch depth = 994 nm

SEM Results







- serpentine resistor pattern with four electrode connections
- minimum linewidth 154 – 158 nm, etch depth = 994 nm
- sidewall angle = 87°