Sapphire Etching Panasonic 1

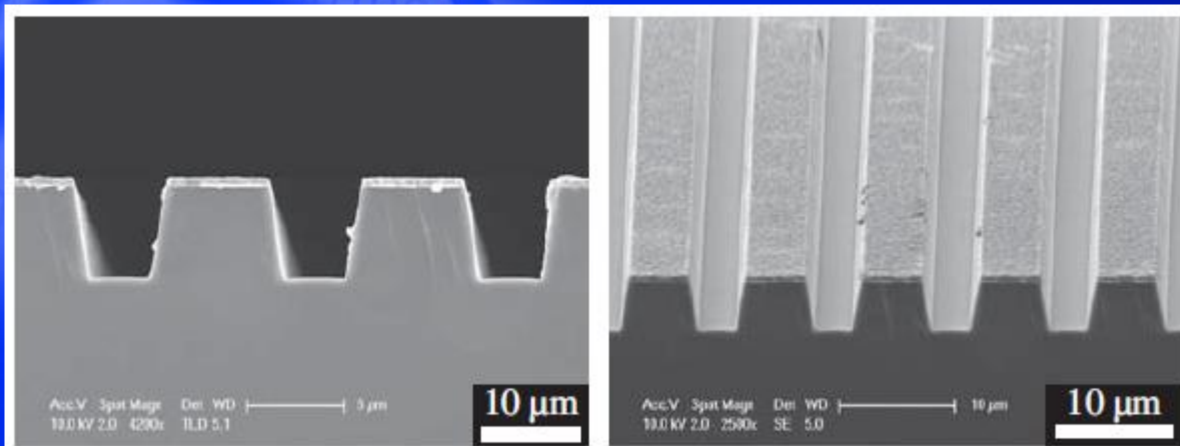
Data from Robert Farrell and Scott Newman

Patterned Sapphire Etch Recipe

Ti/Ni Mask 30/700nm by lift-off
Micro-organic soap and agitation/wiping for particulate removal
Etching Parameters:

- **85 sccm BCl3**
- **0.3 Pa (2.25mT)**
- **900 W ICP Power**
- **100 W Bias Power**
- **400 Pa back-side cooling pressure**

Etch Rate of Sapphire: 83nm/min
Nickel Etch Selectivity: 18:1



Important Note!!
Use Chamber Conditioning
See Next Page

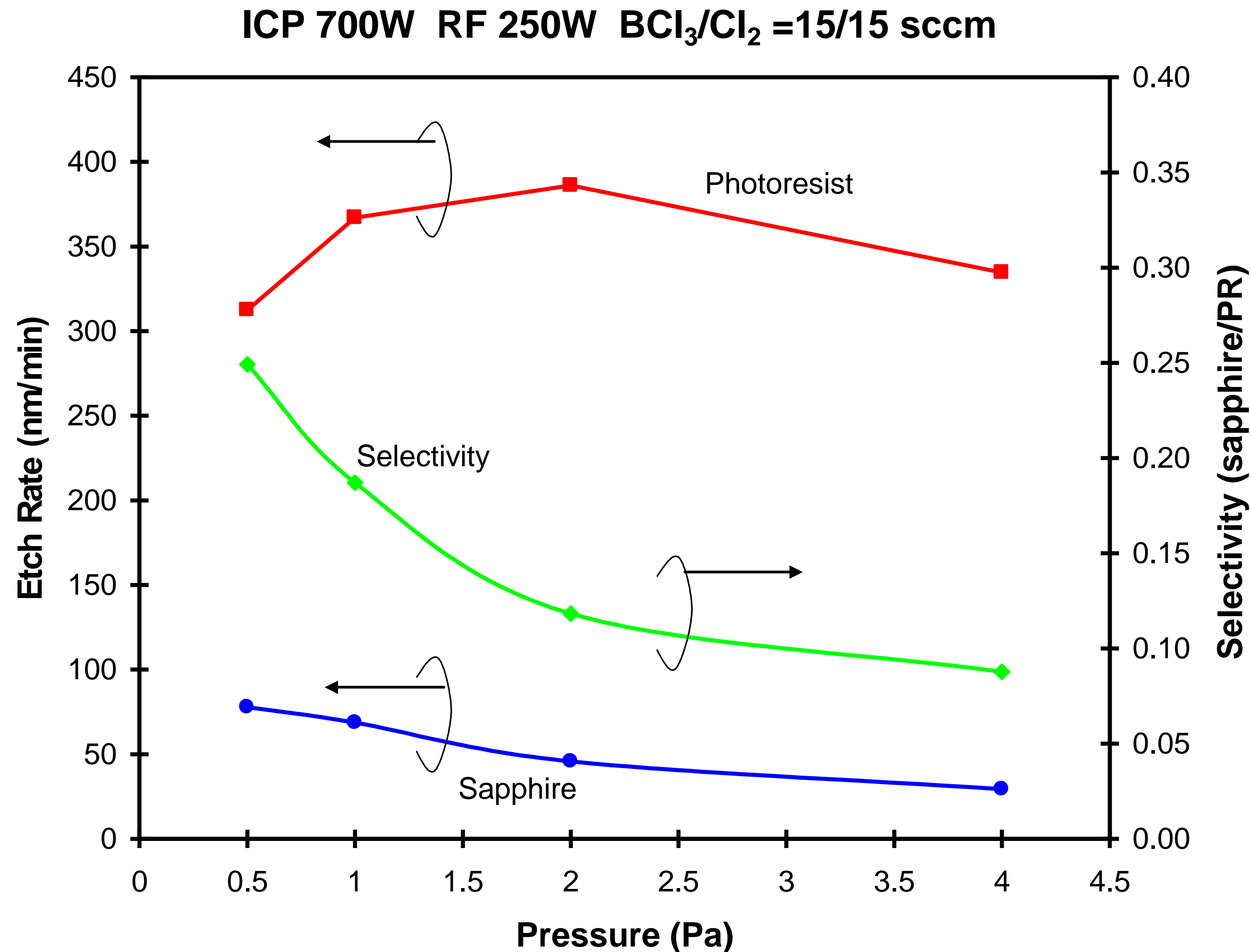
Chamber Conditioning

10 min CF_4/O_2 clean (#105)
- Standard recipe
- Si cleaning wafer

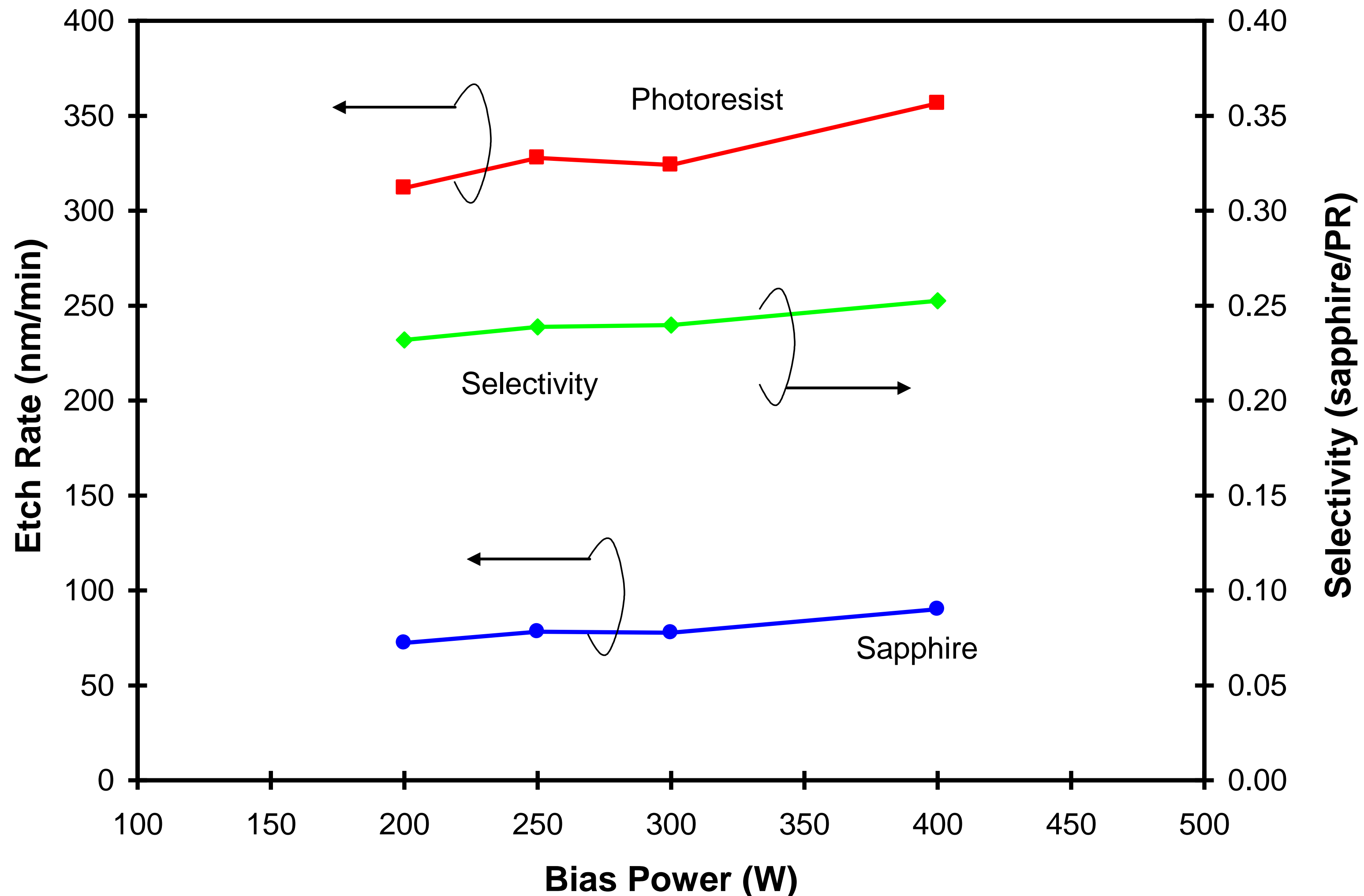
10 min O_2 clean (#121)
- Standard recipe
- Si carrier wafer

10 min BCl_3 chamber prep.
- 85 sccm BCl_3
- 0.3 Pa
- 900 W ICP
- 100 W Bias
- He backside flow: 400 Pa, 15 sccm
- Use a Si carrier wafer.

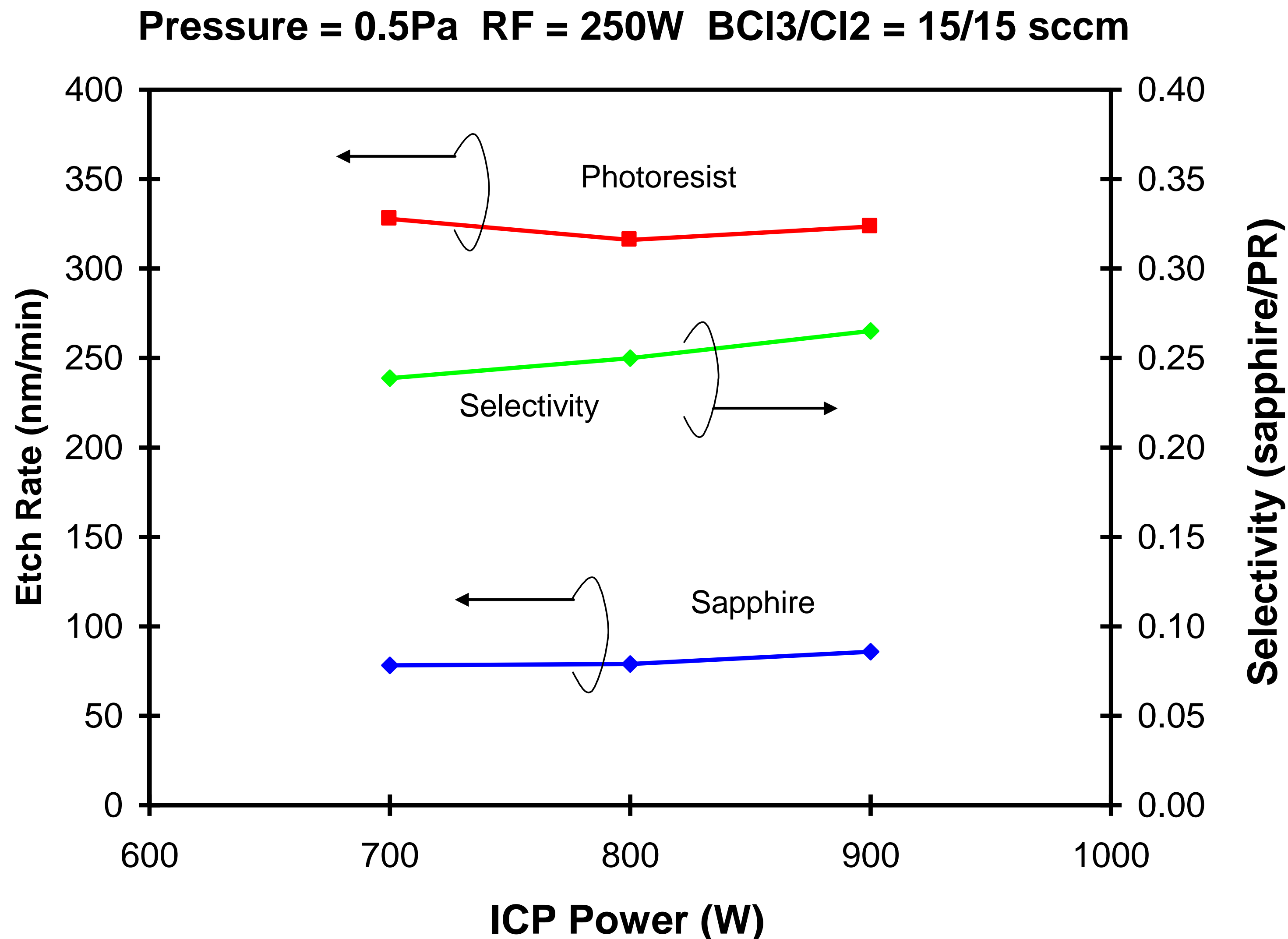
ICP Etching – Pressure – PR Mask



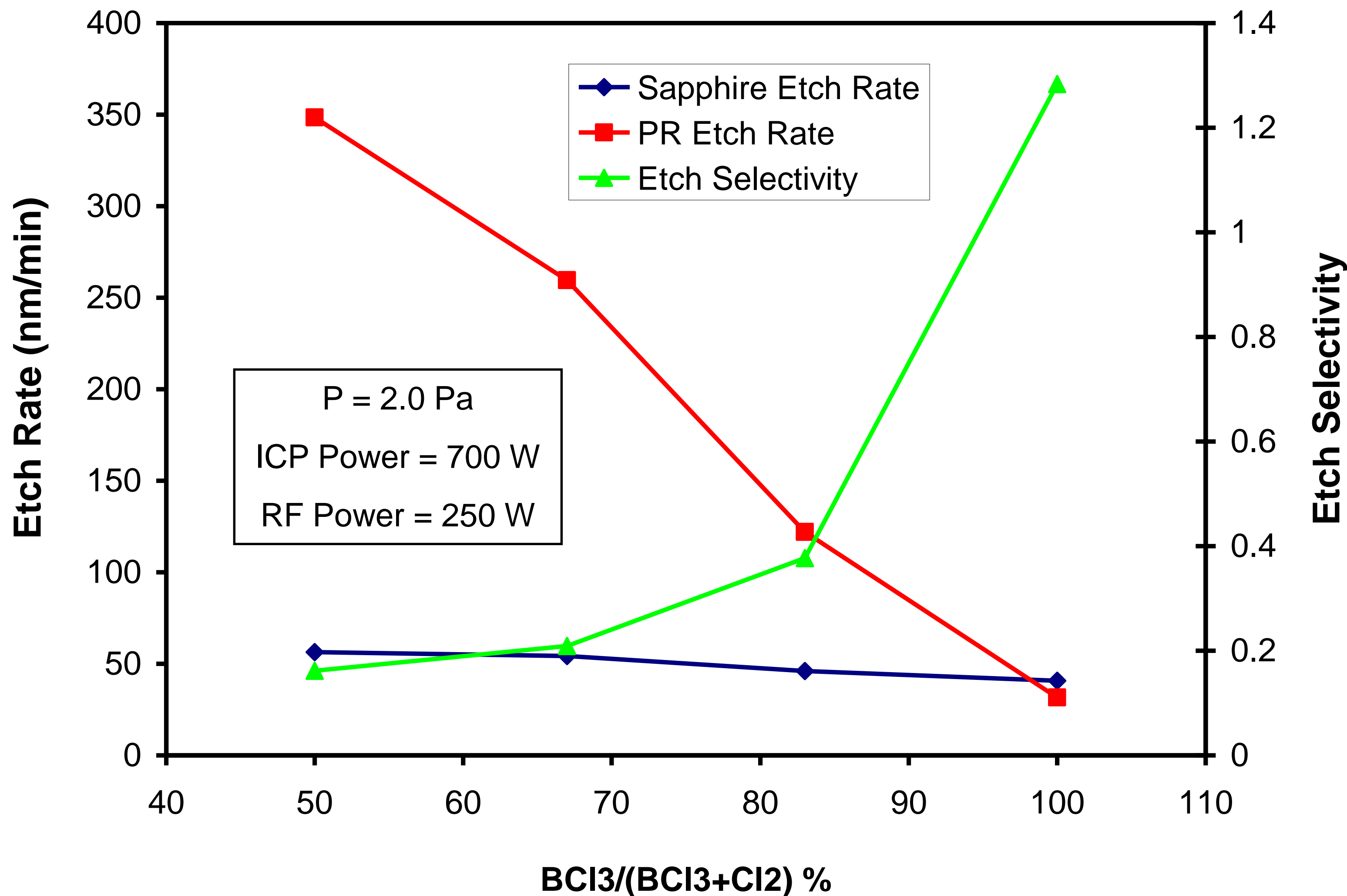
ICP Etching – RF Power – PR Mask



ICP Etching – ICP Power – PR Mask



ICP Etching – Flow Ratio – PR Mask



ICP Etching – Flow Ratio (2) – PR Mask