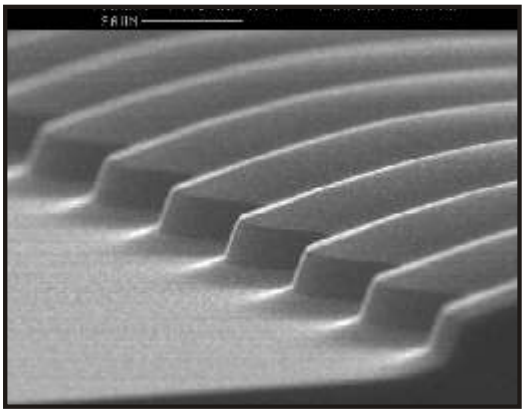
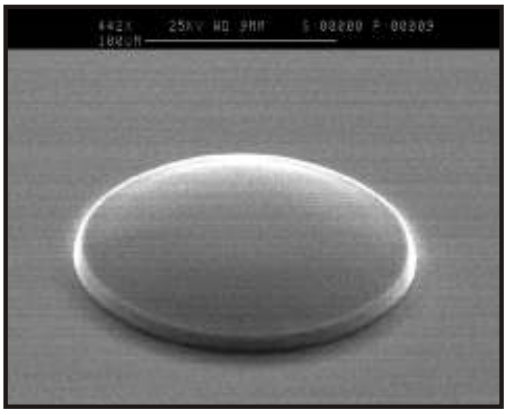
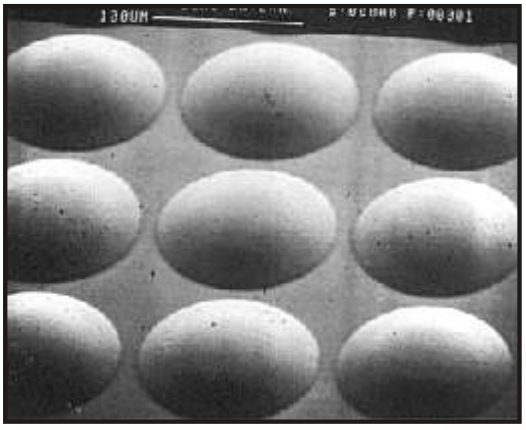
Plasmalab Data

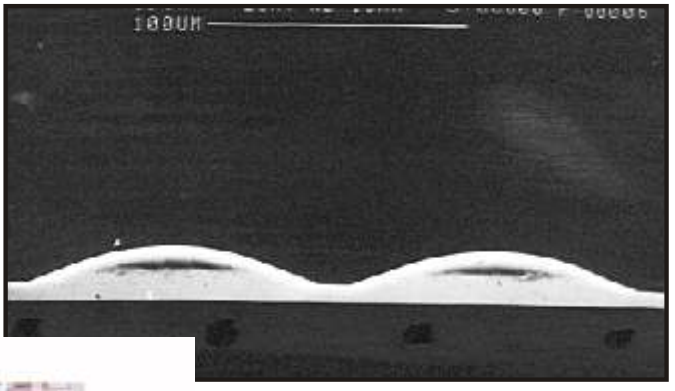
ICP-RIE of Lenses in Si





OPT Application lab, UK:
Si lenses etched by ICP
(lower 2 SEMs by ECR
in 1993)



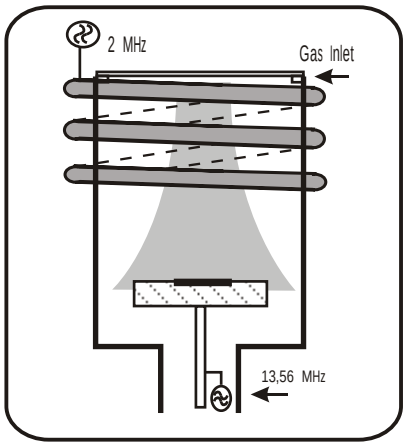


Plasmalab 80 Plus

Plasmalab System 100/ 133

Results:

Rate : > 200 nm /min
Selectivity to PR: 2:1 (adjustable)
uniformity ± 3 % (6”)
Lenses: smooth, no residues
Fluorine based process



The photoresist profile is reproduced in silicon.
Lens profile may be produced in photoresist either by reflowing or by grey-scale exposure.
This process can be adjusted to give the desired selectivity silicon to resist around 2:1.
This adjustment can be made during the process, to create changing radius lenses. Laser endpoint detection can be used on large areas of resist, to identify when all the resist has been removed.