

# Characterization of Wet Etching Channels in Glass Substrates

Rhonda Franklin (PI), Casey Murray

Electrical and Computer Engineering, University of Minnesota

NNIN Facility utilized: Nanofabrication Center

## DESCRIPTION OF WORK

- ◆ The goal of this work is to develop a repeatable process for wet etching Borofloat33 borosilicate glass to form channels.
- ◆ Utilizing the same fabrication process a comparison between Pyrex Corning 7740 and Borofloat33 was performed.
- ◆ Use of Cr/Au/PR mask allowed for extended etch times.
- ◆ AJA Sputterer was used to avoid pinholes.

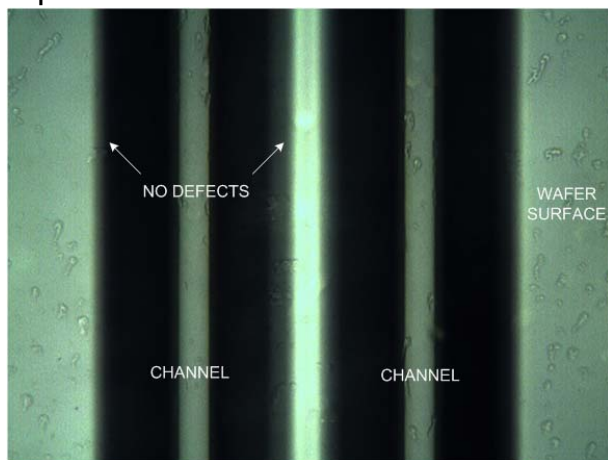


Fig. 1: Channels etched in Pyrex Corning 7740 show defect free channel walls.

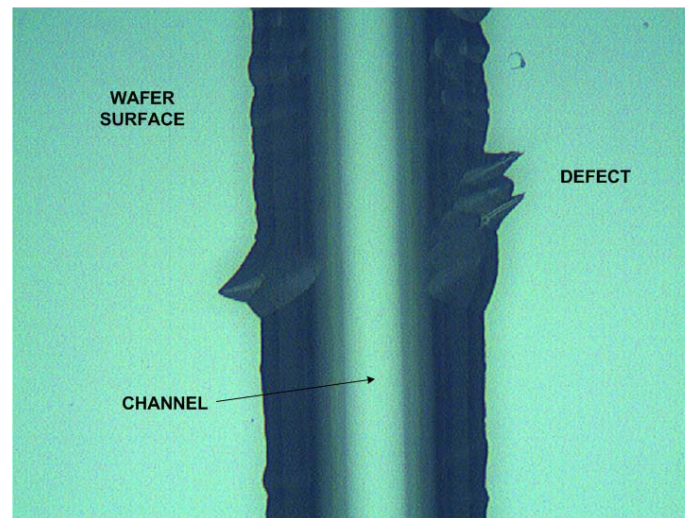


Fig. 2: Channel etched in Borofloat33 shows defects in channel walls.

## MAJOR OBSERVATIONS

- ◆ Using 49% HF the etch rate was ~8  $\mu\text{m}/\text{min}$  for Borofloat33 and ~10  $\mu\text{m}/\text{min}$  for Pyrex Corning 7740.
- ◆ Channel walls of Pyrex Corning 7740 were more defined showing no defects.
- ◆ Defects observed in Borofloat33 are believed to be caused by delamination of masking layers.