

# Corial 200RL

## A Reactive Ion Etcher



# Corial 200RL

RIE Reactor

Load-lock for  
200 mm  
wafers

Laser  
Endpoint  
Detector



# Compact RIE System



# Reactor Features

- **Reactive Ion Etching** source designed to operate with a wide working pressure range (1 to 400 mT),
- **The large cathode size** enables etching of up to 200 mm wafers,
- **Shuttles** for loading and to enable etching of different sizes and numbers of wafers,
- **Helium assisted heat exchange** between cathode, shuttle and wafers with mechanical clamping to maintain sample temperature below 100°C during etching at high RF power.



# Benefits of Shuttles

- Quick change of sample shape and size,
- Optimum process conditions with NO modification of process chamber,
- Less cross contamination between processes when a shuttle is dedicated to a given process.



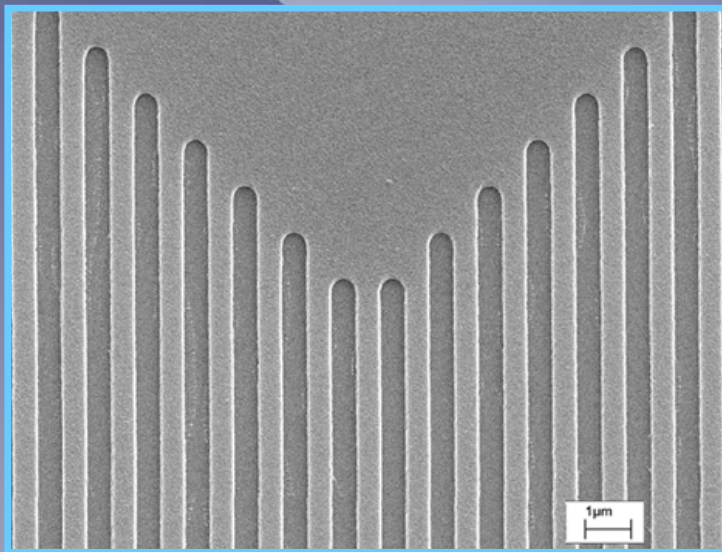
# ALUMINUM ETCHING

- Aluminum etching requirements:
- High etch rates and anisotropic profiles,
- Aluminum etch rate : 250 nm/min,
- After the aluminum etching phase, a passivation step avoids corrosion due to  $AlCl_3$  trapped on the side walls during aluminum etching,
- No damage after a week long moisture exposure test at atmospheric pressure.



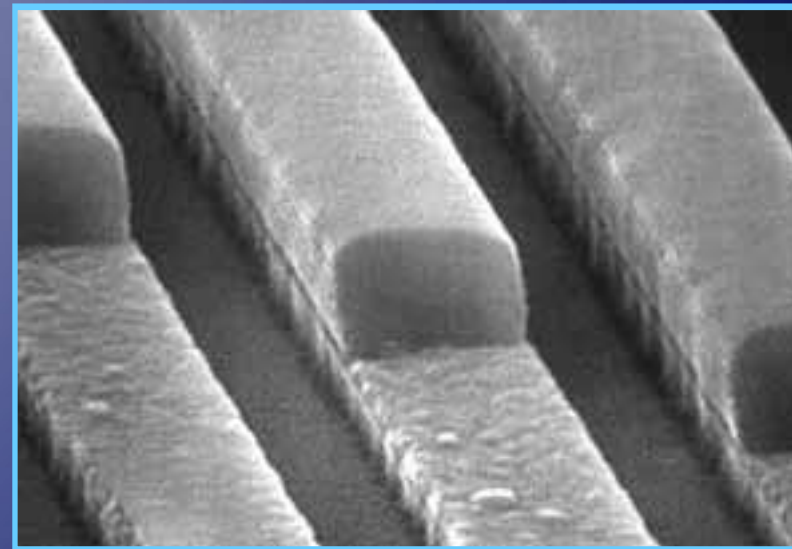
# ALUMINUM ETCHING RESULTS

High resolution aluminum etching with **no post etch Al corrosion**



End of electrode for a 1600 Å thick technology.

(Magnification is **600X**)



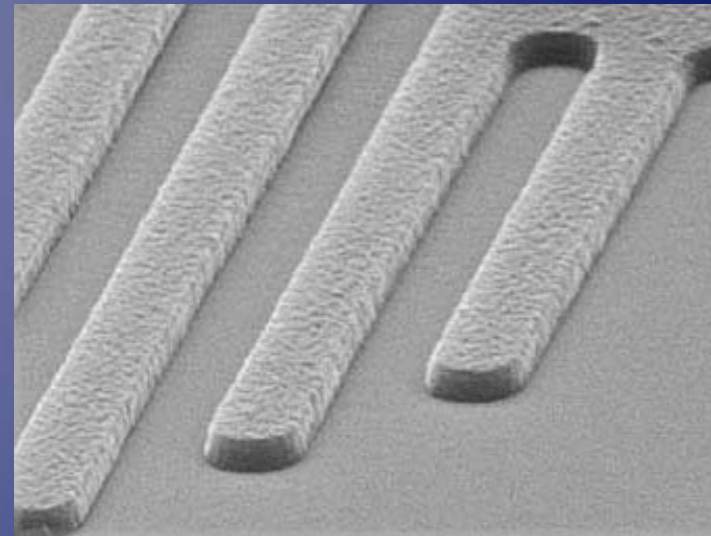
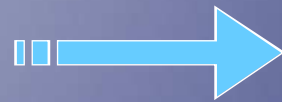
Aluminum etched with photoresist mask (Spaces = 0.5 μm)

(Magnification is **20,000X**)

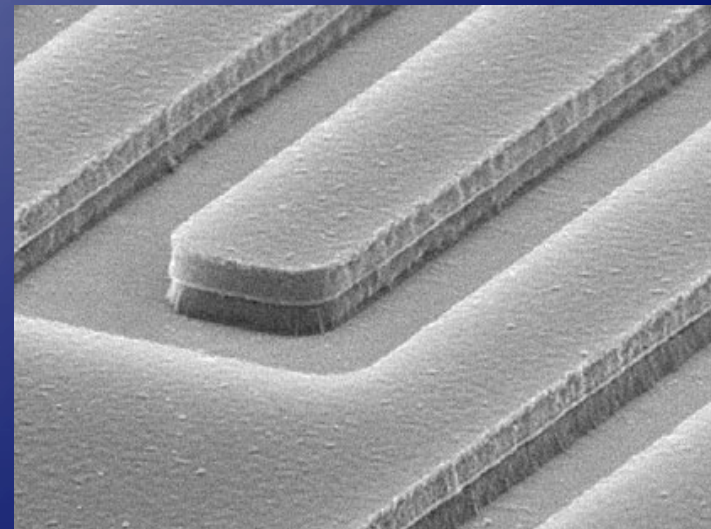
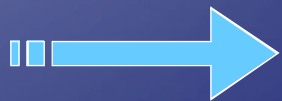


# RIE of Al and Al/2%Cu

Clean Al etch



Etching of Al/2%Cu  
on Al





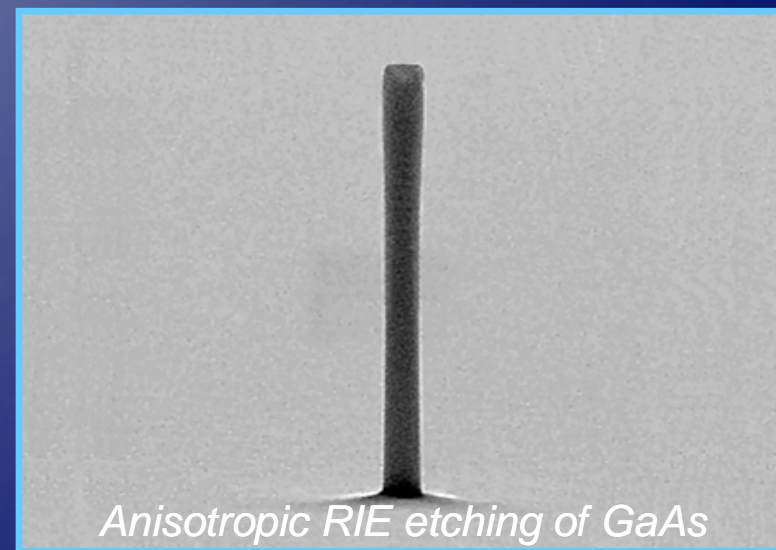
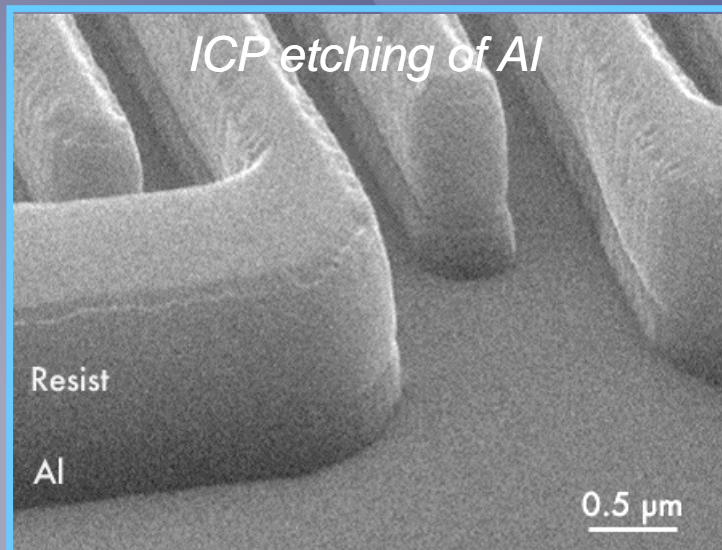
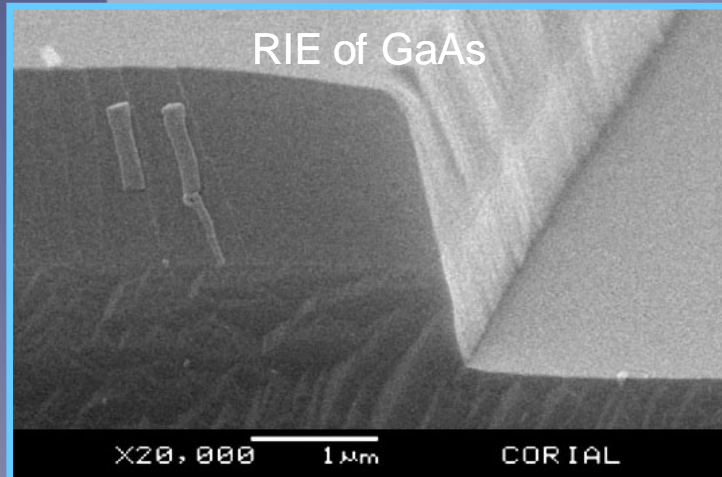
# Process Specifications For Aluminum Etching

PROCESS	Etch Rate (nm/min)	Uniformity of Etch Rate	Selectivity against PR	Profile
RIE of Al with PR mask	250	±5%	2.5	85° to 90°
RIE of Al/2%Cu with PR mask	200	±5%	2	85° to 90°

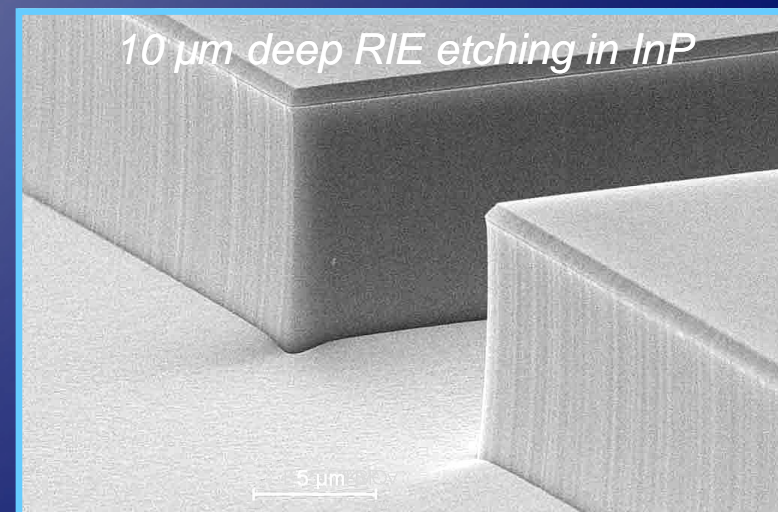
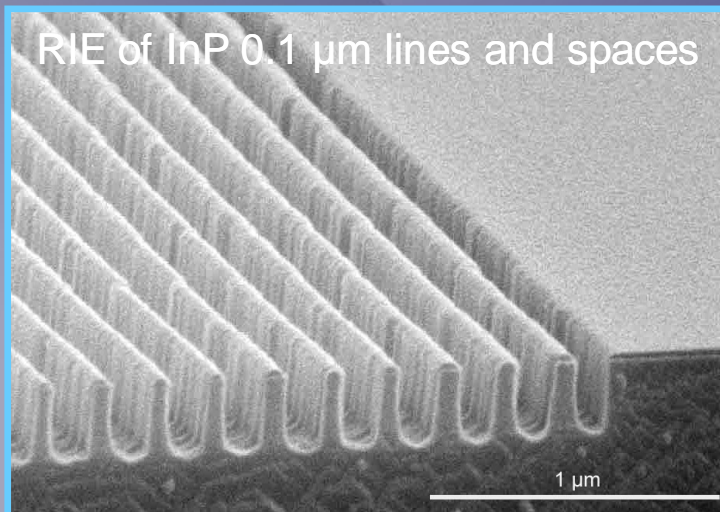
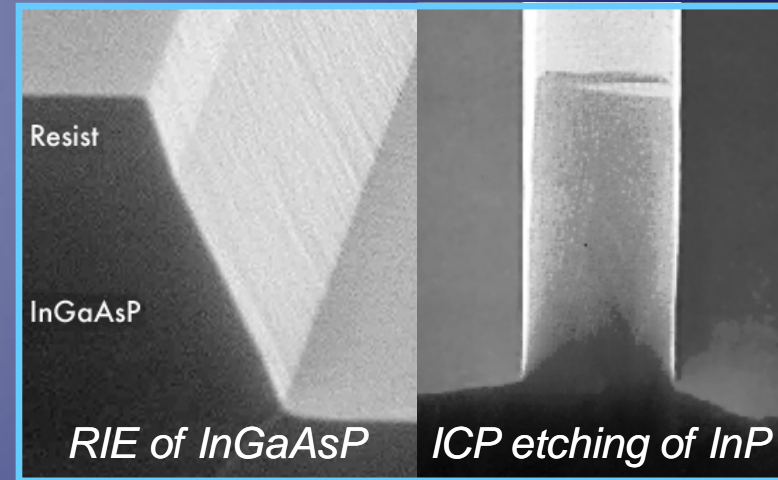
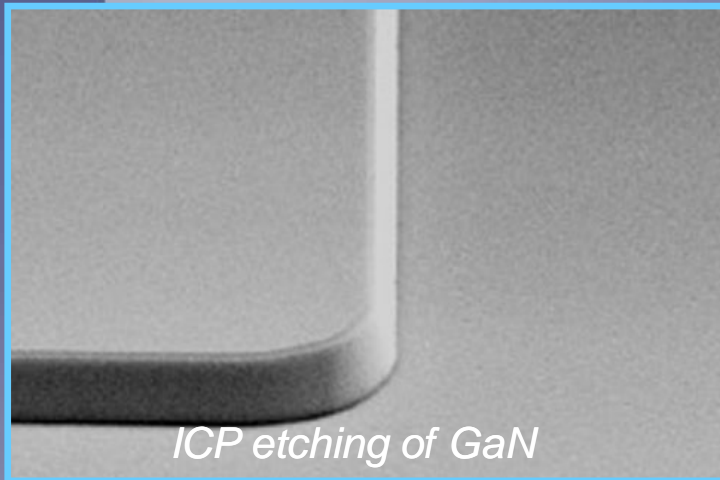
*Guaranteed Process Results*



# Chlorine Based Etching



# Halocarbon & Chlorine



# A Communicant tool

