CNSE ROX Outgassing Tool
Current Status

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IEUVI Resist TWG, San Jose

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Special thanks to Noreen Harned and Jennifer Massier for technical
guidance and support
Started from existing Resist Outgassing and eXposure (ROX) Tool

Zr Filter

Energetiq Source

300 mm wafer
Load Lock

Photodiode

Mass spectrometer
Worked toward ASML requirements

- Installed and aligned electron gun
- Realigned electron gun...
- Added witness plate loadlock transfer system
- Added witness plate cleaning
- Plasma cleaned chamber
- Obtained shared access to XPS
- Obtained shared access to ellipsometry
- Upgraded system components
- Optimized control system

Hybrid system – EUV exposures of resist and electron exposures of witness plate
Process Flow

1. Receive coated wafers from SEMATECH
2. E0 exposure
3. Ellipsometry for E0 measurement
4. Witness plate Exposure
5. XPS of non-cleanables
6. Cleaning of witness plate
7. Ellipsometry of witness plate contamination
Have had many challenges

• Previously certified – then tool went out of spec
  – Worked to solve and improve many parts of the testing process and improve the accuracy and repeatability of the results
    • Stage issues
    • Substrates
    • Filament contamination with silicon
    • ...

• The learning experiences will help with the installation and use of the commercial outgassing tool in Albany
Good news

• Now testing resists to ASML protocol
• Working jointly with SEMATECH on tool operation