



CNSE ROX Outgassing Tool Current Status

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IEUVI Resist TWG, San Jose

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guidance and support*



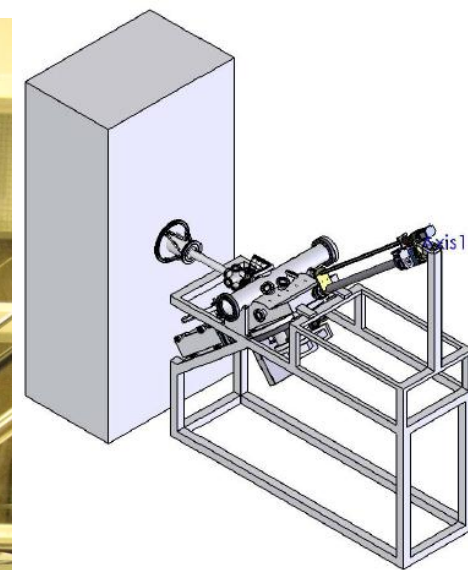
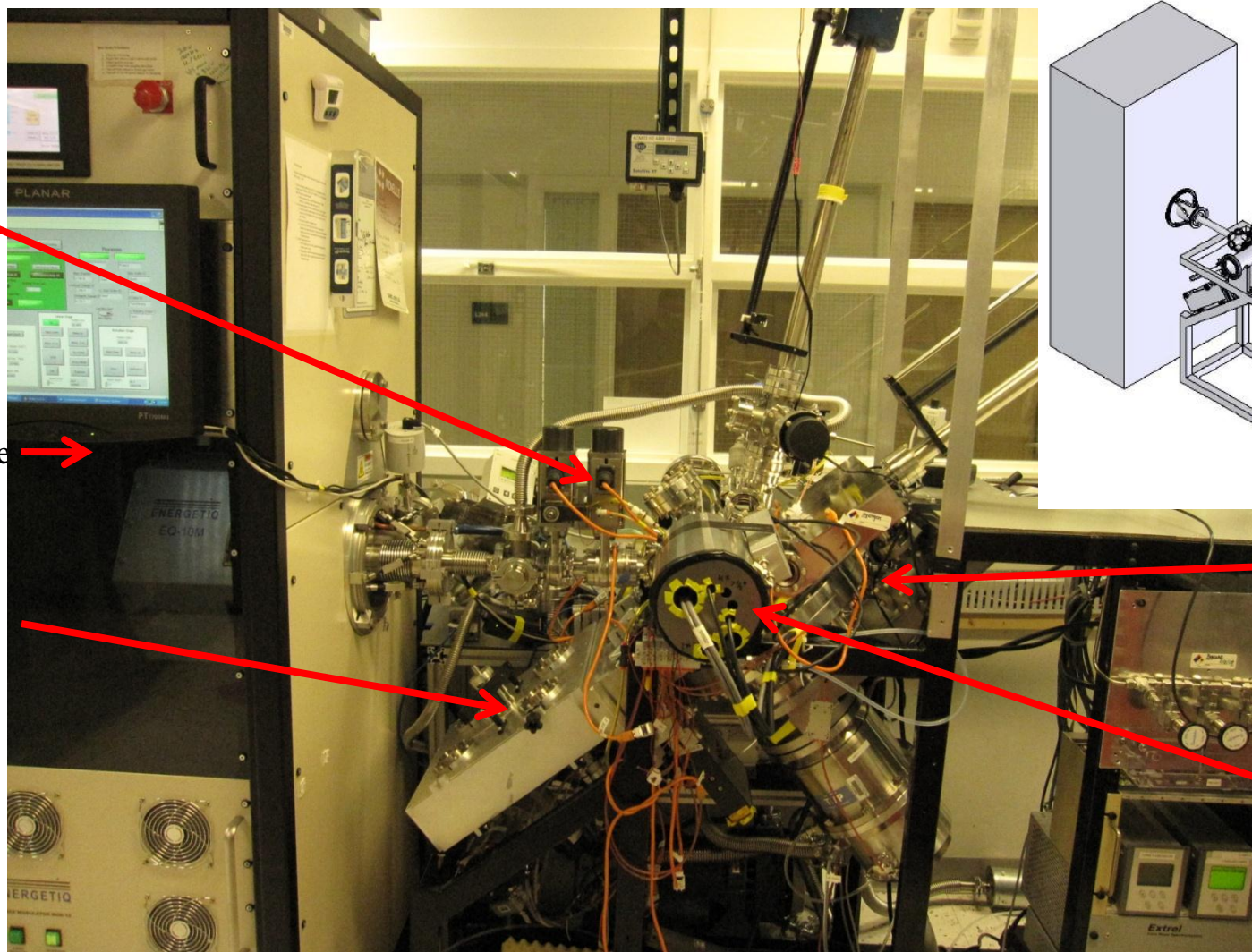


Started from existing Resist Outgassing and eXposure (ROX) Tool

Zr Filter

Energetiq Source

300 mm wafer
Load Lock



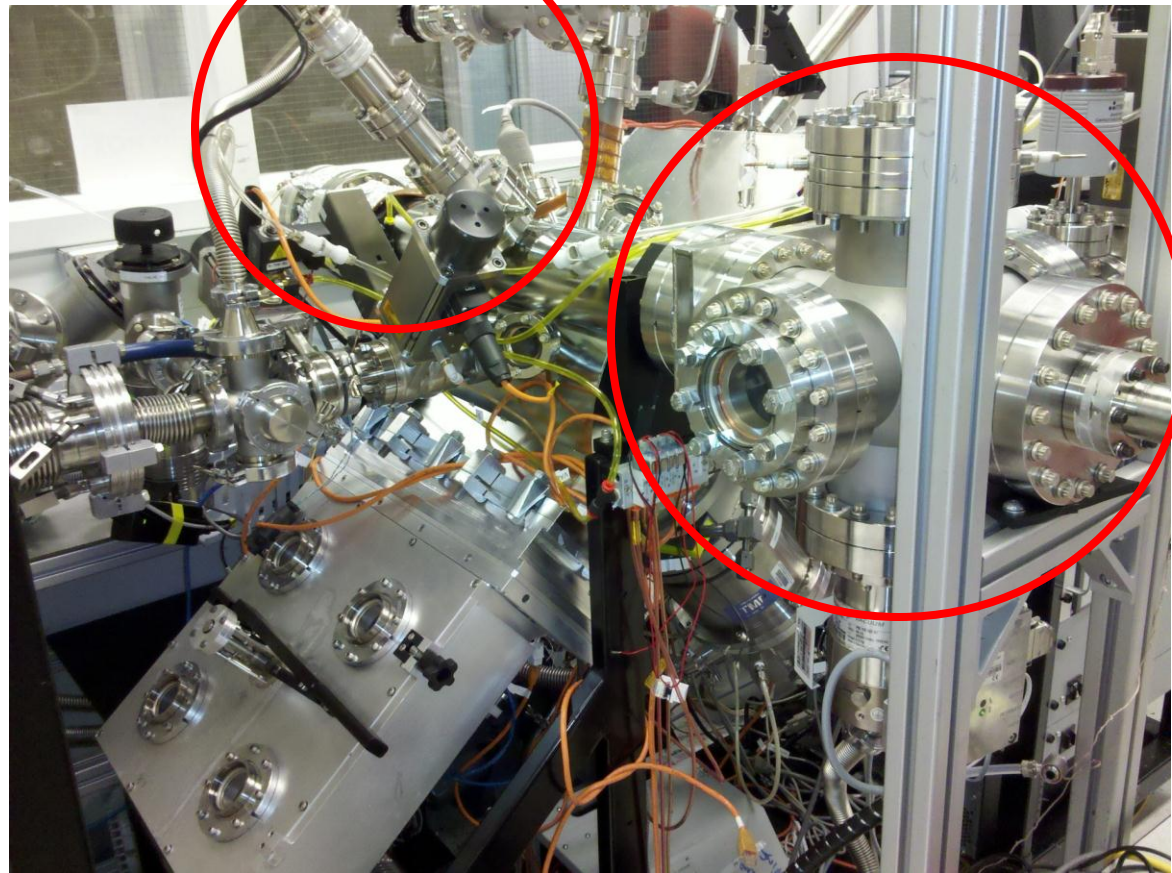
Photodiode

Mass
spectrometer



Worked toward ASML requirements

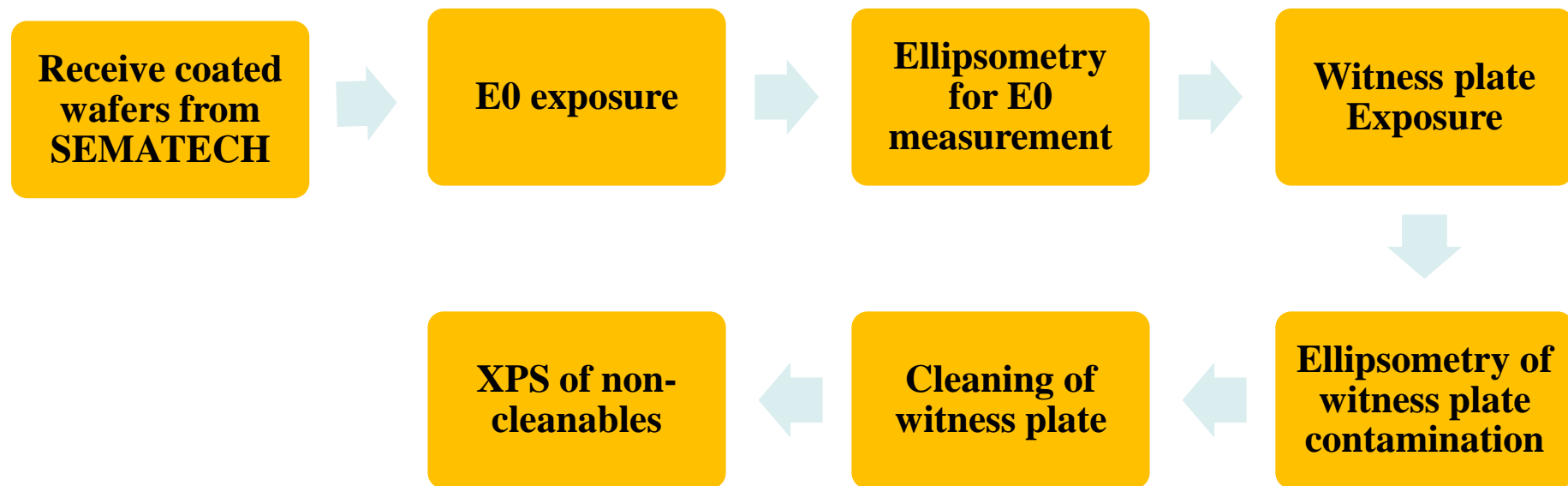
- Installed and aligned electron gun
- Realigned electron gun...
- Added witness plate loadlock transfer system
- Added witness plate cleaning
- Plasma cleaned chamber
- Obtained shared access to XPS
- Obtained shared access to ellipsometry
- Upgraded system components
- Optimized control system



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



Process Flow





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