

SOLVENT VAPOR ANNEALING GIXS



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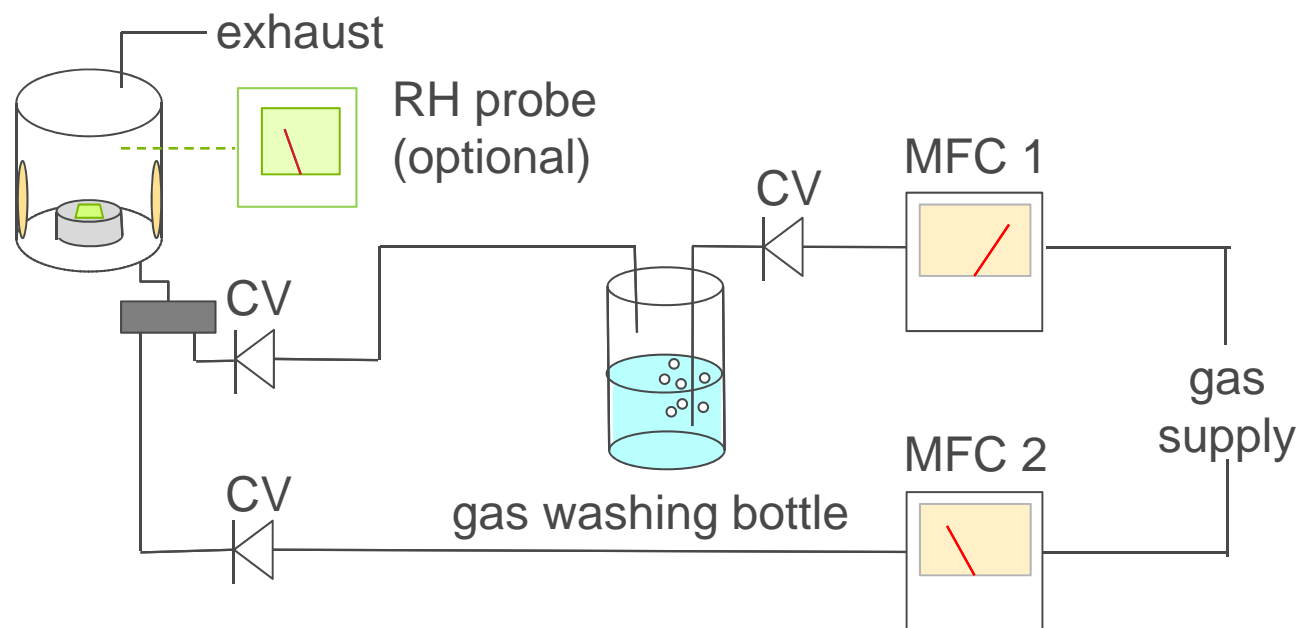
KEVIN MOELLER
Argonne Glass Shop

JULIE ALBERT, SAM BLIESNER
Tulane University

TING XU
UC Berkely

GIXS SOLVENT VAPOR CONTROL

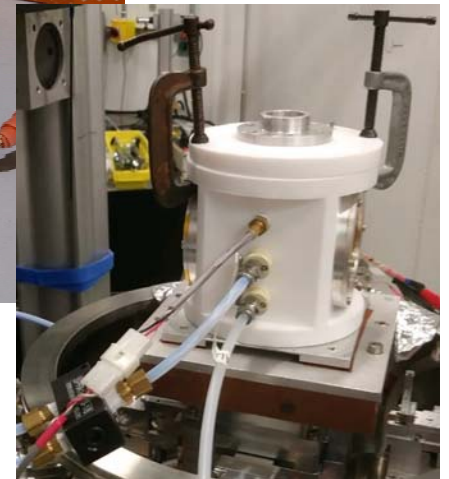
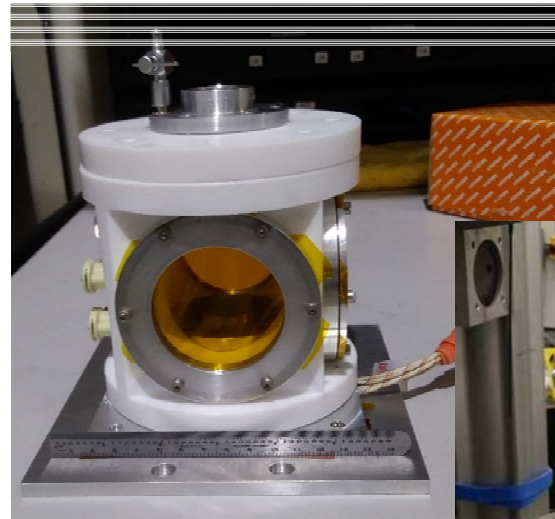
Schematic



GIXS SOLVENT VAPOR ENVIRONMENT

Teflon/Al/Kapton Chamber Adapted by Zhang Jiang

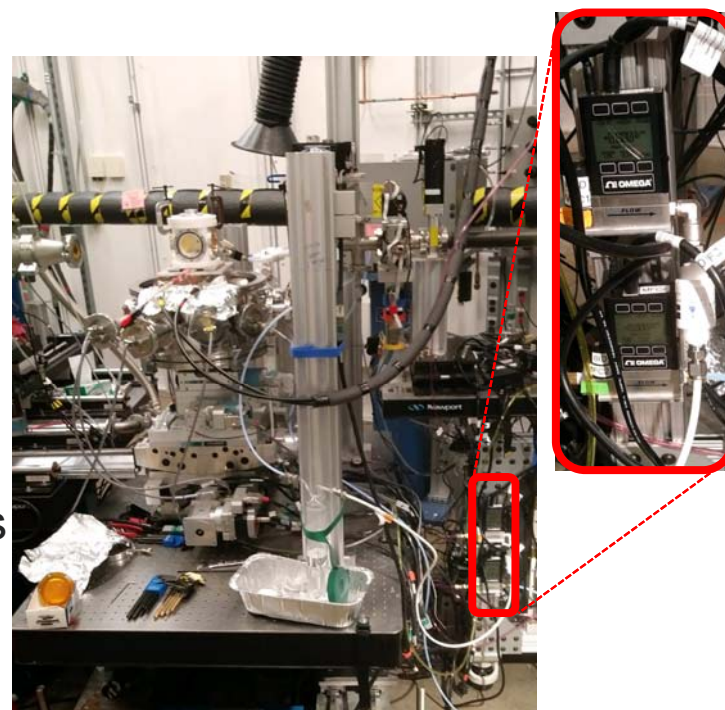
- Design from Ting Xu, UC Berkeley
- 12.5 cm dia. X 12.5 cm tall
- Kapton windows on 3 sides
- Optical port on top
 - Filmetrics F20 for Spectral (Optical Reflectance)
- Quick connect gas inlet/outlet/RH probe
 - Ohmic Instruments HC610
- Limited thermal control $T < 70^{\circ}\text{C}$
 - Resistive heater + thermoelectric
 - Pt111 thermometer in base



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Components

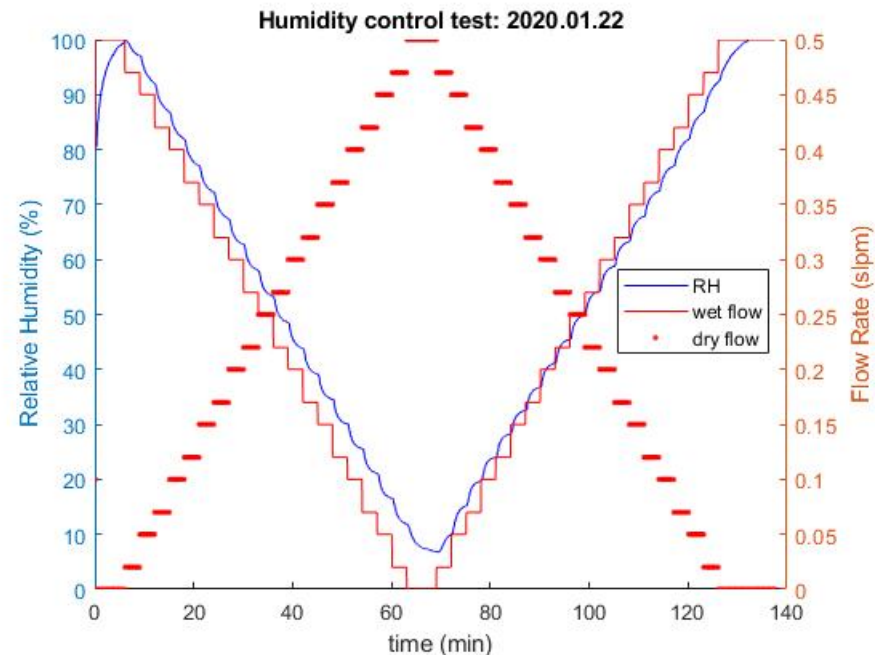
- Mass flow controllers for dry/wet gas
 - Omega 2620A (0 -1 slpm)
- Glass gas washing bottle (Pyrex, VWR)
 - Modified by Kevin Moeller, ANL Glass Shop
 - Fine glass frit
 - Reduced tubing 8 mm to ¼”
- Check valves
 - Parker UHP PTFE Fluoropolymer CV-1 series
- Ultra-torr fittings couple glass to teflon tubing
 - Swagelock SS-6-UT-6-600
- 3-input manifold



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Results

- RH not part of feedback loop yet
- Tweak flow on MFCs to get RH
- Need look up table or feedback for RH-based control
- Also work with Chloroform, Acetone, Toluene, Tetrahydrofuran, etc.
- Filmetrics device to monitor swelling



Recorded at ambient temperature