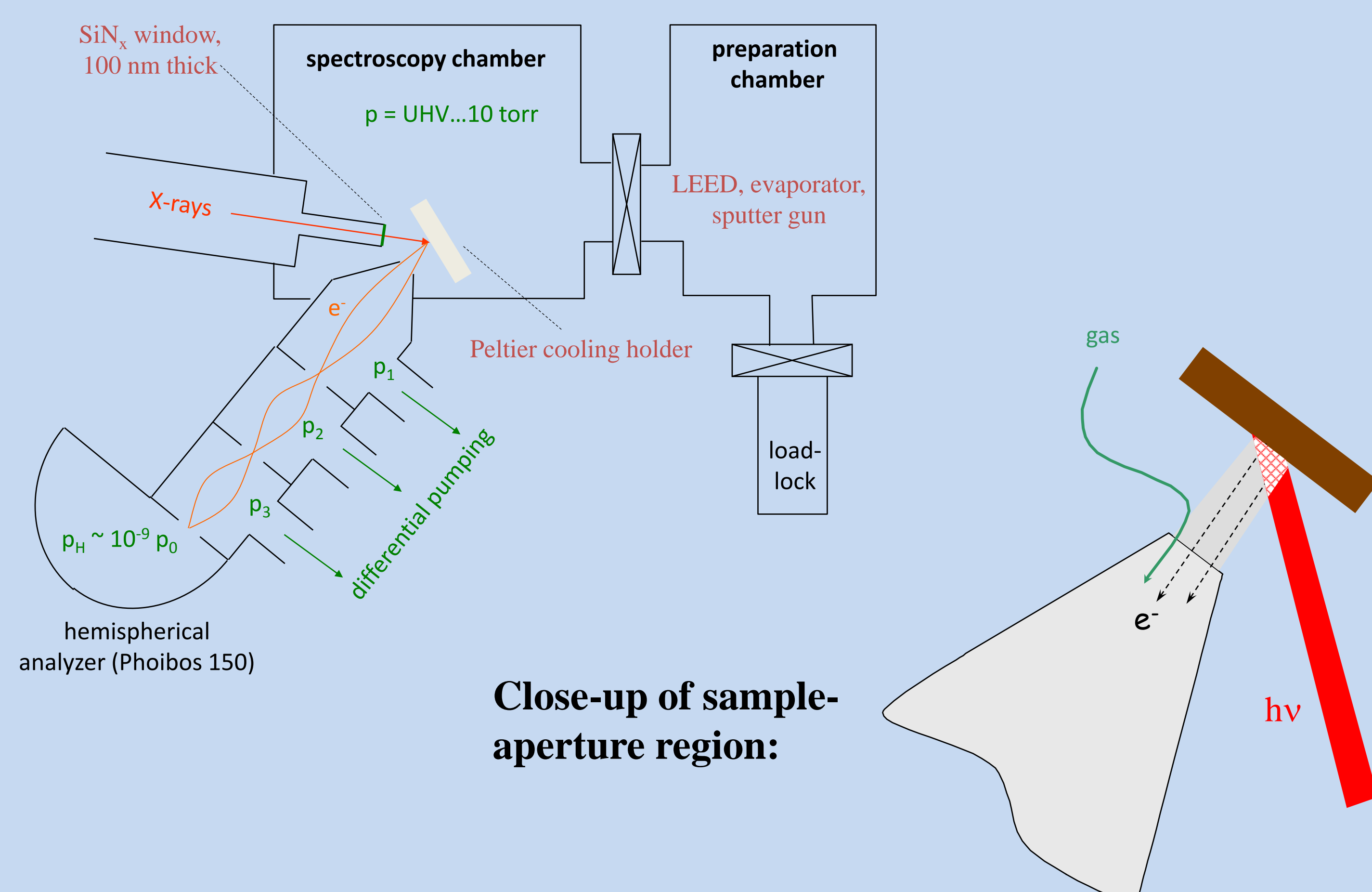


Comparison of Gas and Adsorbed Phase Photoemission Spectra of C_3H_xO on Ice at $-45\text{ }^\circ\text{C}$

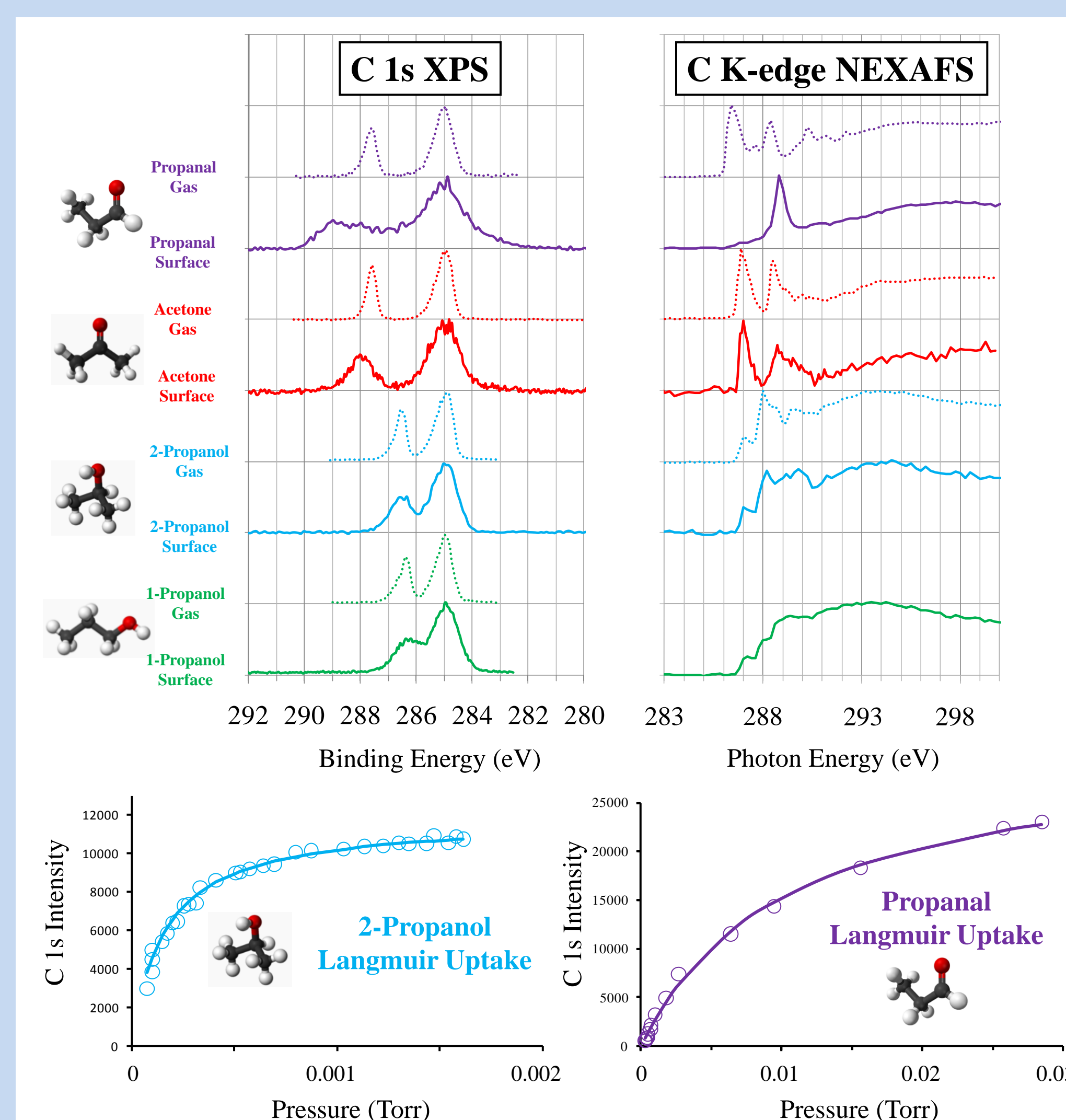
John T. Newberg and Hendrik Bluhm

Chemical Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA

Technique: Ambient Pressure Photoemission Spectroscopy

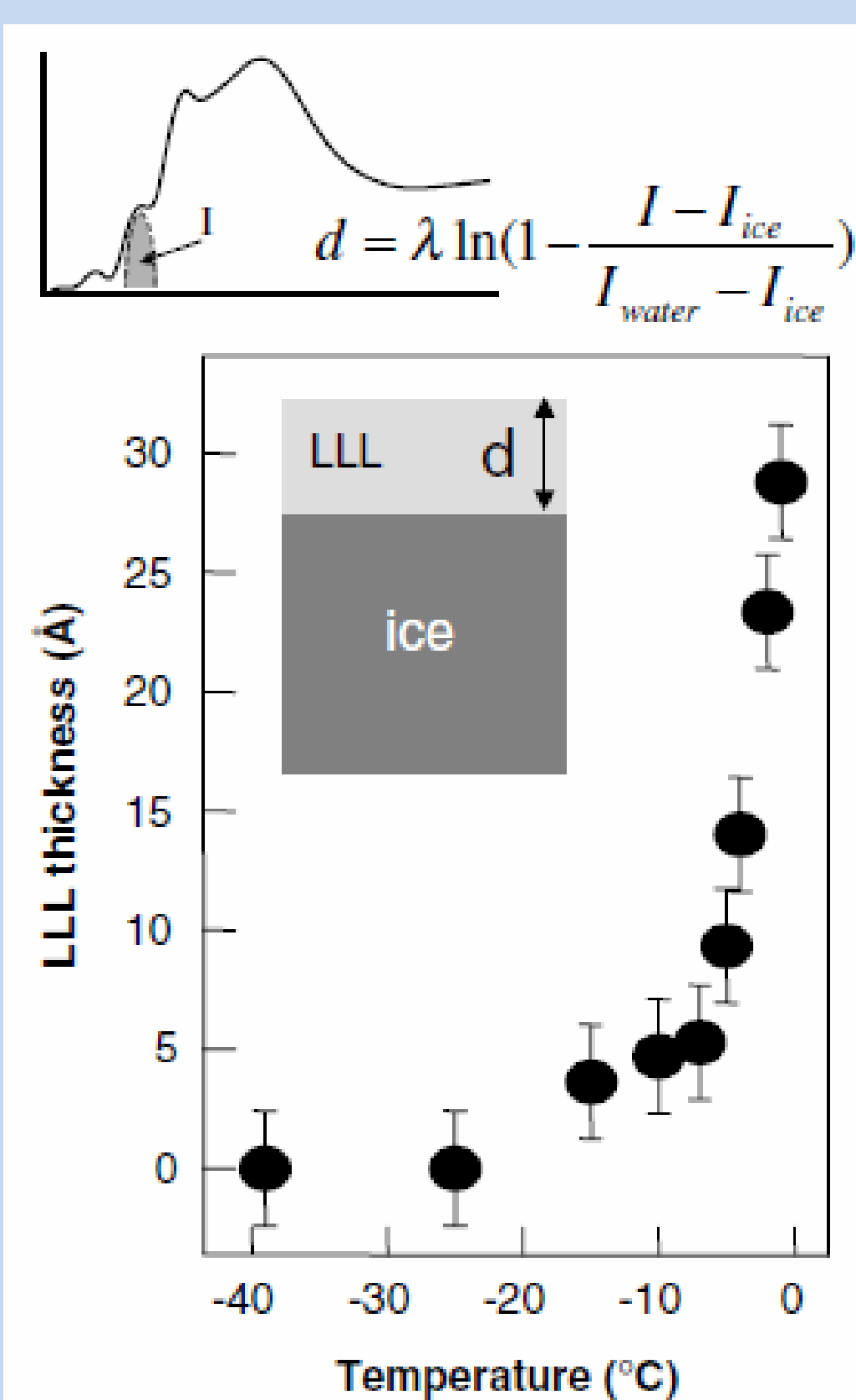


Results: Adsorption at $-45\text{ }^\circ\text{C}$

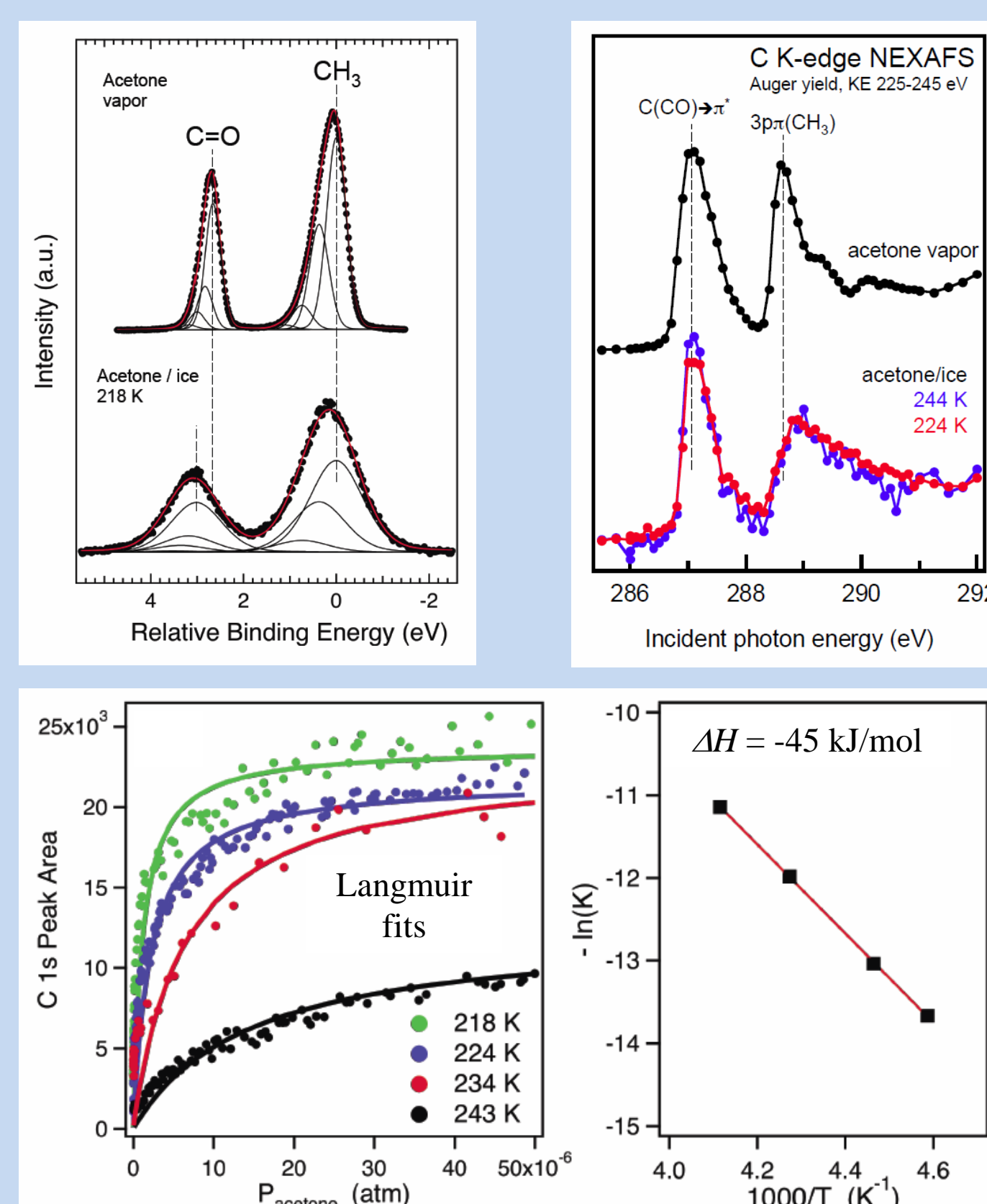


Technique Capabilities

Measure QLL thickness



Adsorption Nature and Energetics



Conclusions

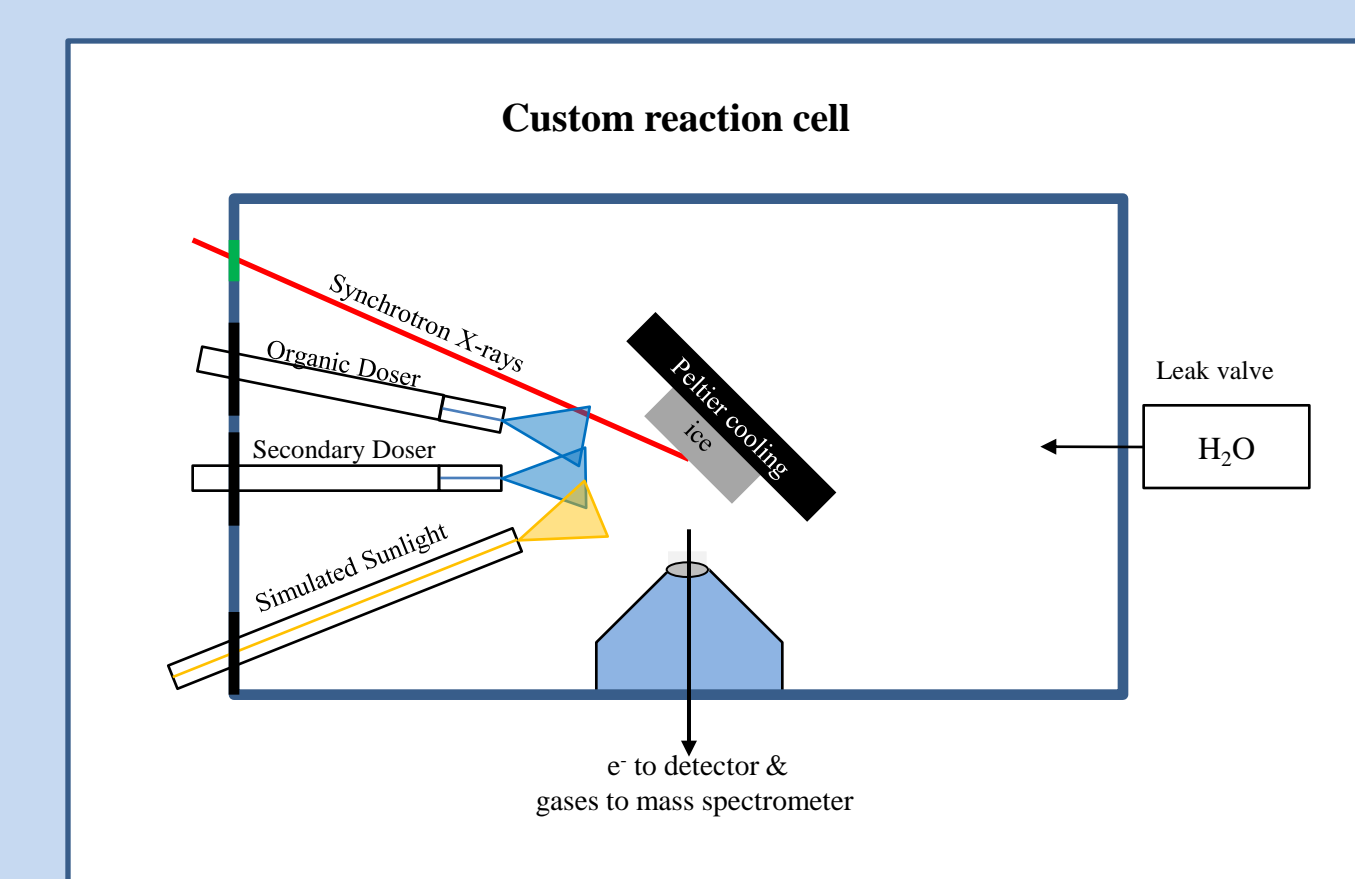
- Uptake experiments give rise to Langmuir isotherms.
- The alcohols and acetone adsorb molecularly.
- Propanal shows evidence of oxidation to an organic acid.

Acknowledgements

- JTN acknowledges NSF postdoctoral research fellowship support under Grant # ANT-1019347.

Future Studies

- Photochemical oxidation of organics at the ice interface.
- QLL thickness monitoring as a function of photochemical processing.



"The Premelting of Ice Studied with Photoelectron Spectroscopy"
Bluhm et al., *J. Phys. Condens. Mater.*, L227, 2002

"Acetone Adsorption on Ice Investigated by X-ray Spectroscopy and Density Functional Theory"
Starr et al., *PCCP*, submitted, 2011