Laser Light Scattering in Complex Fluids

Our understanding of gases and crystals are quite mature, but the physics of liquids remains a major challenge. Particularly challenging are highly viscous liquids near the threshold for solidification whose slowing molecular motions become increasing more complex as transition into a glass takes place.

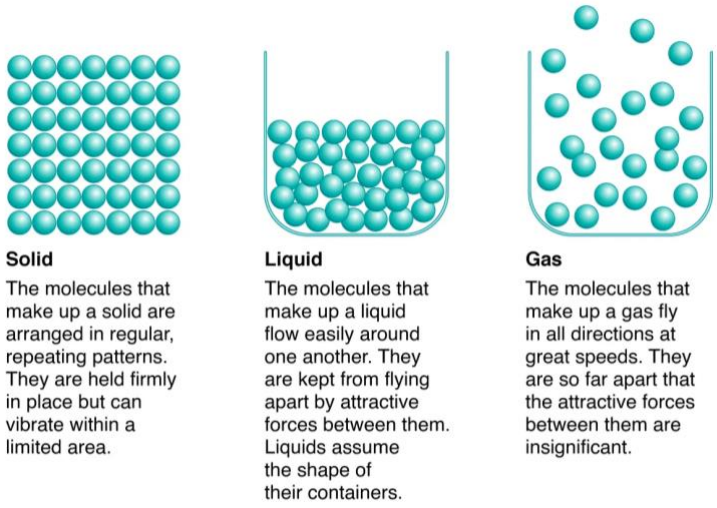

Image: Encyclopedia Britannica

In the **Glass Dynamics Lab**, we employ **photon correlation spectroscopy** (PCS) as a primary means to investigate the nature of slow molecular motions in a variety of primarily inorganic glass-forming liquids. Research activities include working with high temperature furnaces to produce high quality glass samples, using laser spectroscopy to study these glasses in the molten state and developing models to interpret the findings.

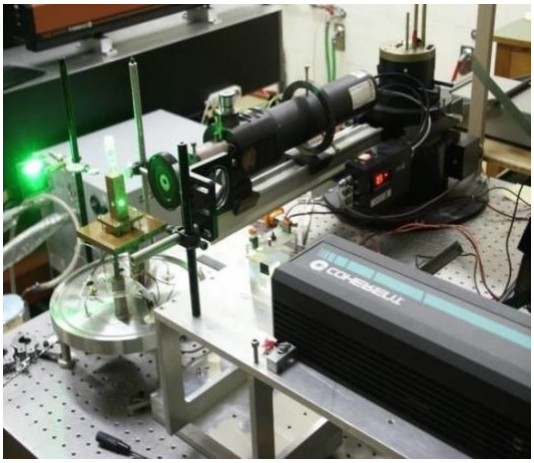

Image: https://www.old.iom.cnr.it/

Contact: Dr. David Sidebottom via email: sidebottom@creighton.edu

Recent publications:

D. L. Sidebottom, "Generic α-relaxation in a strong GeO2 glass melt" *Phys. Rev. E* **107**, L012602 (2023).

G. Dirks, J. Pereira and D. L. Sidebottom, "Dynamic light scattering in low connectivity phosphate glass melts crosslinked by Na or Zn" *J. Non-Cryst. Sol. X* **17**, 100157 (2023).

H. Uppala and D. L. Sidebottom, "Evidence for ionic diffusion in dynamic light scattering from glass-forming sodium borate melts" *J. Non-Cryst. Sol.* **588**, 121627 (2022).