

Thursday, September 12, 2024

Refreshments at 3:15pm outside PSF 101
Colloquium from 3:30pm - 4:30pm in PSF 101

**Where John Spence's Vision Led
My Research:
Demonstrating New Techniques for
Watching Biomolecules at Work**

Professor Lois Pollack
Cornell University



Abstract:

Despite the fundamental importance to life of proteins and RNA, the motions that enable their functions cannot (yet) be fully visualized. X-ray free electron lasers (XFELs), the newest x-ray sources, have inspired the development of novel approaches to observe real time structural changes in biological macromolecules. Recent advances permit visualization of structural dynamics with spatial resolution as sharp as single Å and time resolution as sharp as millisecond. I will discuss recent experiments that reveal the structural dynamics of proteins and RNAs as they interact with partners, providing important clues into how biomolecules support life.

Biography:

Lois Pollack is the John Edson Sweet Professor of Engineering at Cornell University. She received her Ph.D. in condensed matter physics from MIT and came to Cornell as a postdoc to join the Low Temperature Physics Group. After several productive years working in the Microkelvin lab, she decided to apply her experimental skills to a completely different problem: biological physics. She became fascinated by the 'molecular machines' that enable life and wanted to understand the physics that drives them. She transitioned her research to focus on experimental biophysics, and shortly thereafter, joined the faculty in the School of Applied and Engineering Physics in 2000. Her research focuses on developing and applying physics-based instruments to provide new insights into some fascinating problems in molecular biology.