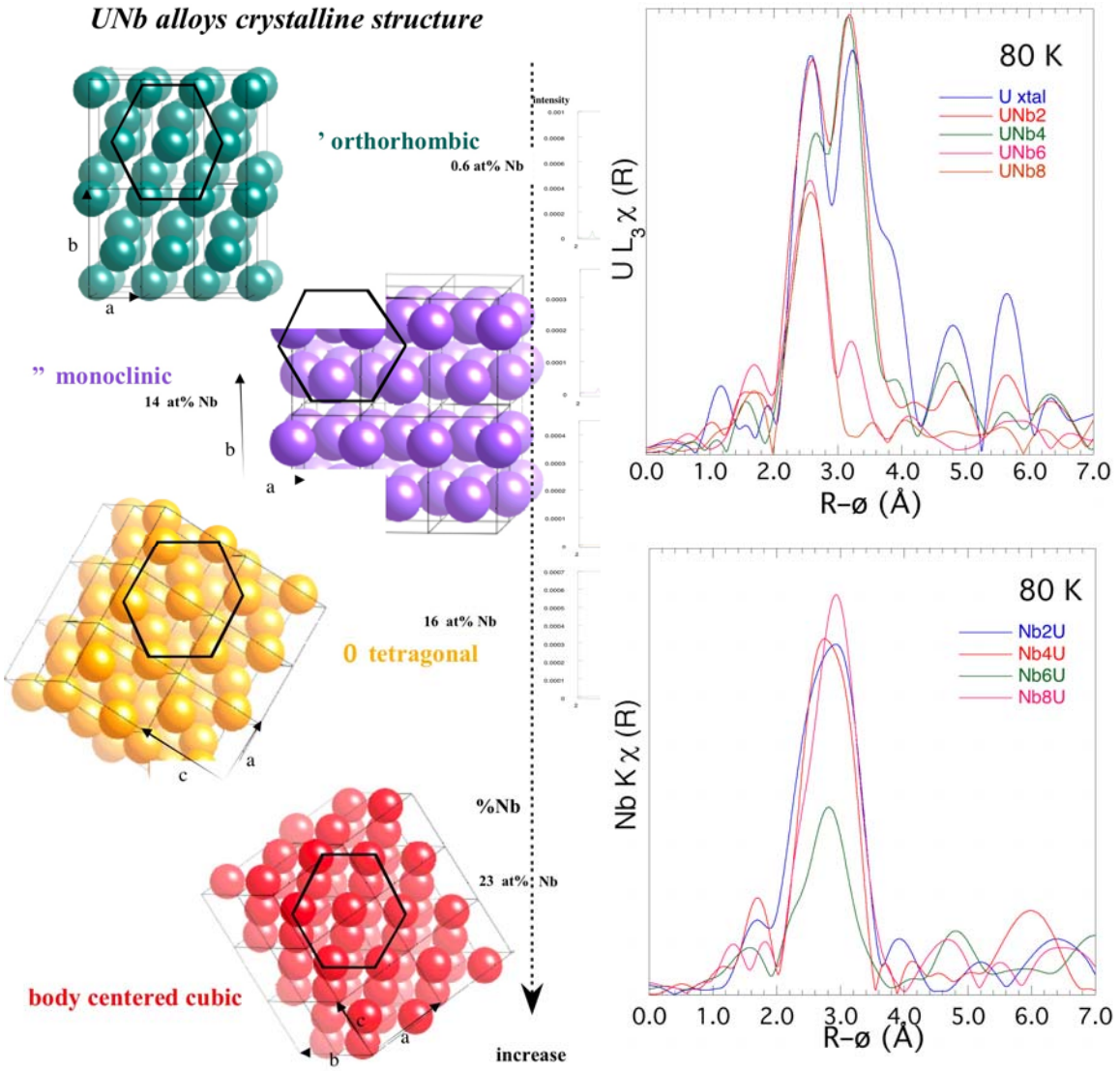
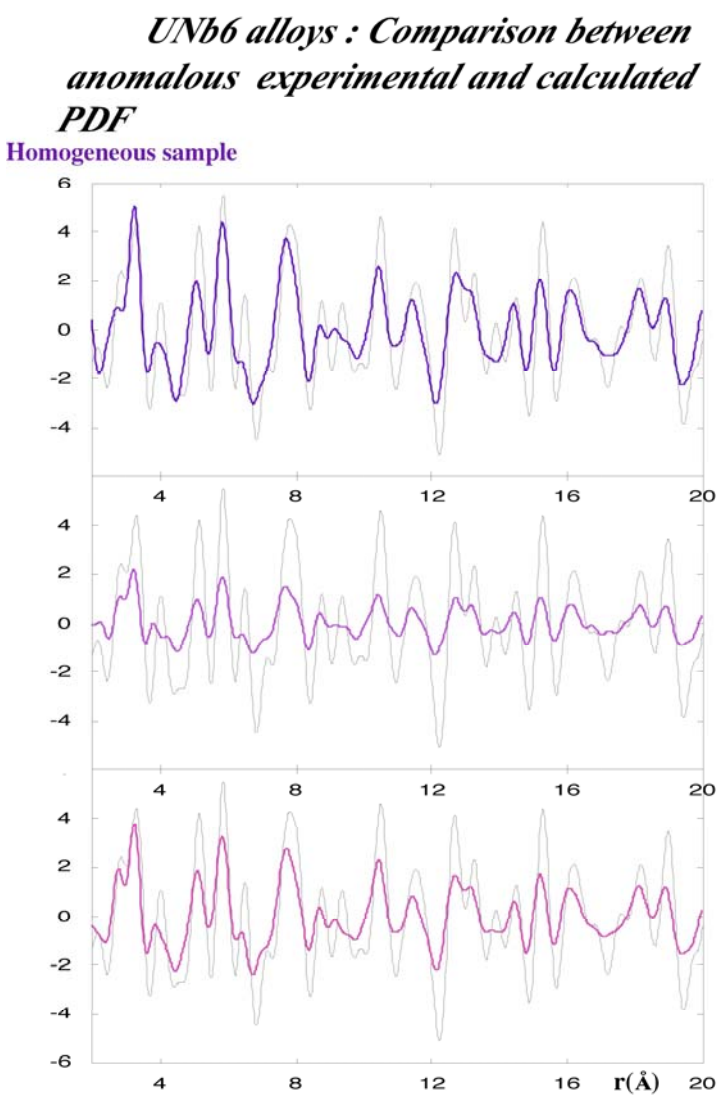
Strongly Interacting Inhomogeneities and Element Specific Measurements Below the Diffraction Limit and in Disordered Systems (anomalous or E dependent pdf)





XAFS shows that the speciation differs

But onlyl pdf with its longer range can determine if there are strong interactions over intermediate distances that cause the inhomogeneities to organize into larger scale structures

What do we need to do this?

It is now recognized that many (five+) measurements over a wide energy range are better than a few at the edges, so…

- The ability to go to very high Q (30 $Å^{-1}$)
- At high to very high energies
- With lots of x-rays (need accurate background determination)
- Much faster with position sensitive detectors (SLS)
- But don't give up on high resolution because some aspects of inhomogeneity ordering also affect lineshapes
- More support as experiments become more complicated

What can SSRL do better than APS?
Or can it duplicate APS with the right undulators?