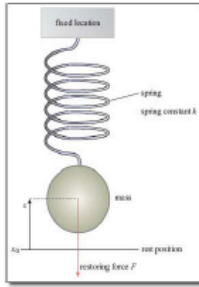
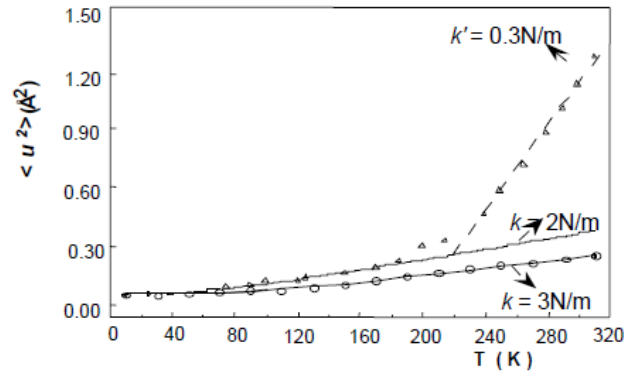


## Quantifying internal forces from an elastic scan



### Myoglobin in different environments



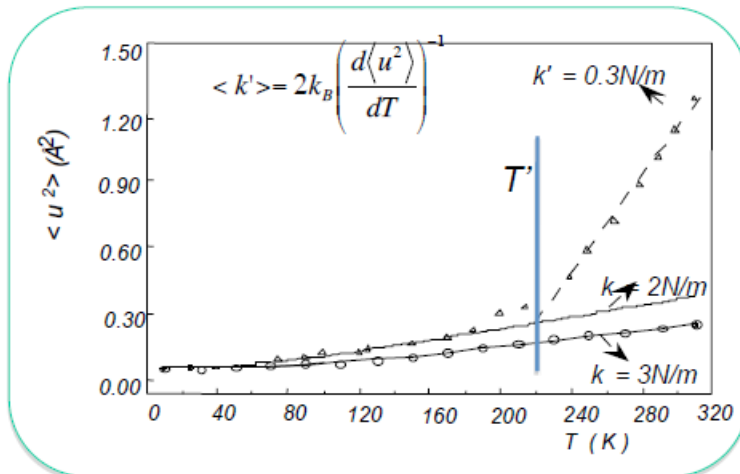
hydrated

in a trehalose glass

$$\langle k' \rangle \sim 2k_B / (d\langle u^2 \rangle / dT)$$

Doster et al. (1989), Cordone et al. (2000), Zaccai (2000)

### Neutron Scattering: Mean square displacements and Effective Force Constants in Myoglobin



hydrated powder

in trehalose glass



$\langle u^2 \rangle$  and  $\langle k' \rangle$  are experimental parameters  
~ flexibility,  
~ resilience respectively