Probing spatial heterogeneity in supercooled glycerol and
temporal heterogeneity with single-molecule FRET in
polyprolines

1. Supercooled liquids can behave like yield-stress solids at temperatures well above the glass transition.
   Chapter 2

2. The thermal history is crucial for the onset of solidification in supercooled glycerol.
   Chapter 3

3. Fluorescent probes can be used to image spatial heterogeneity in a thin film of glycerol.
   Chapter 4

4. The proposed temperature-cycle microscopy combined with optical probing methods can be used to study fast molecular dynamics at the single-molecule level.
   Chapter 6
5. Accurate determination of the center of single photoswitchable emitter has led to “superresolution” or resolution far better than the diffraction limit in fluorescence imaging. 


6. Chromophores whose spontaneous emissions are dominated by their fast non-radiative decay can be detectable by using stimulated emission, which competes effectively with the non-radiative decay. 


7. Non-blinking and -bleaching properties of nano-gold particles have made themselves promising labels in biological applications.

8. The stoichiometry of the GFP-tagged type-II receptor can be quantified in live cells by characterizing the fluorescence intensities and the bleaching steps of the labels. 


9. Reducing global meat consumption would reduce greenhouse gas emissions and cut the costs of climate policy substantially. 


Ted Xia
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