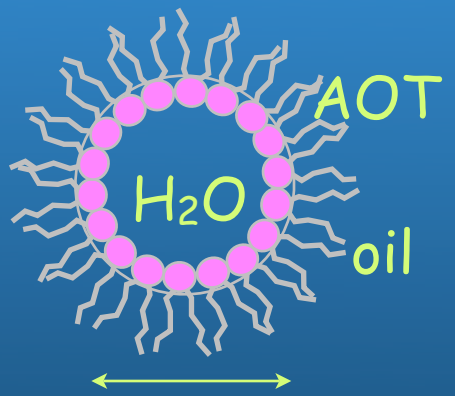
Supercooling of Water Confined in Reverse Micelles

Obergurgl, December 2007

NEUTRONS FOR SCIENCE

Investigation of soft confined water

System: water-in-oil droplet microemulsion



Experiments

- Structural Characterization of the micelles at low temperature:
  Small Angle Neutron Scattering
- Investigation of the freezing on a ns-timescale:
  Elastic fixed window scans on Neutron Backscattering
- Dynamics of the confined water:
  Inelastic Neutron Scattering: Time-of-Flight and Backscattering

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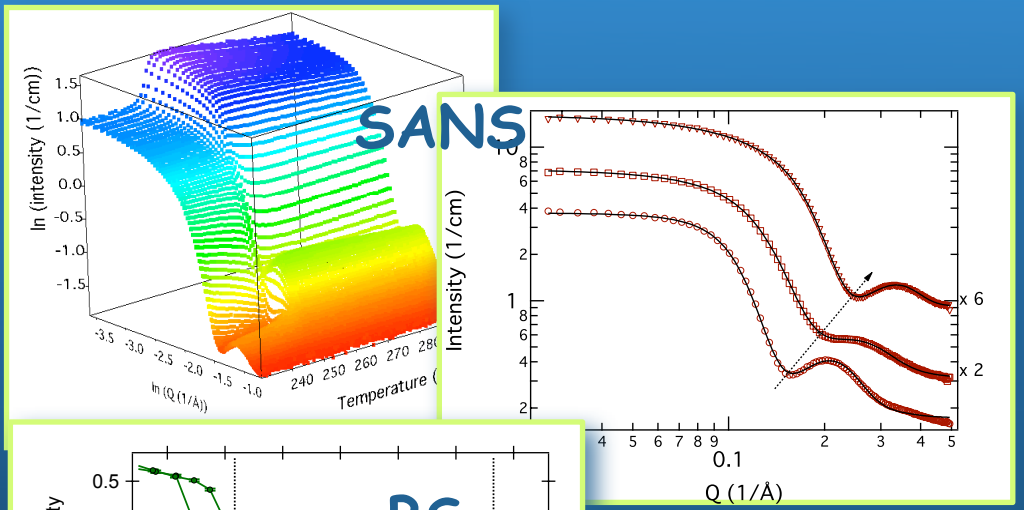
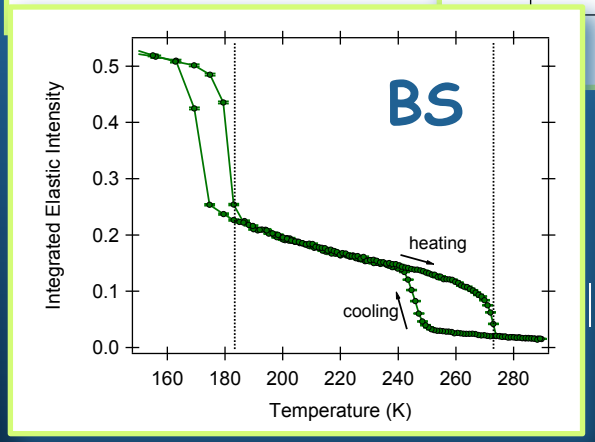
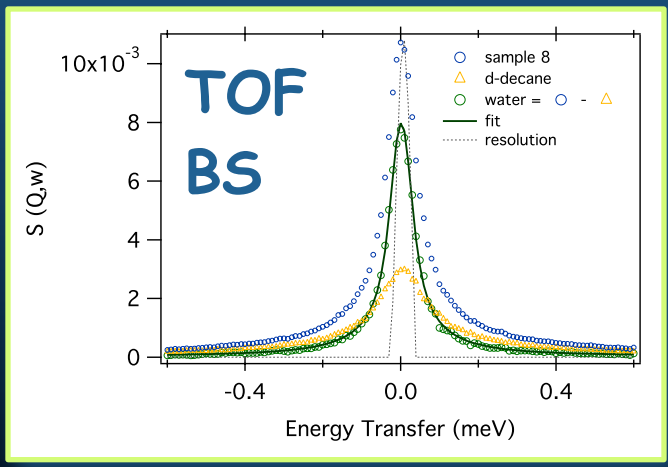




- Droplet structure is stable down to where the water is deeply supercooled
- Smaller droplets are stable down to lower temperatures
- Stronger supercooling of water confined in smaller droplets

- Confined water is strongly slowed down



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