**Colloids and Interfaces (homework I)**

1. Why is a foam considered a colloid? Name three examples of foam.
2. What is the meaning of stability as used in the context of colloids? What is the difference between kinetic stability and thermodynamic stability of a colloid?
3. What is surface tension? Explain the physical significance of surface tension.
4. What is the different between Helmholtz double layer and diffuse layer?
5. An air bubble with a radius of 1×10-6 m is generated in water with a syringe. The bubble is gently transferred to a solid hydrophobic surface. Calculate the contact angle. Use γwv = 72, γsw = 50, and γsv = 20 mJ/m.
6. Consider the following distribution of polymer chains:

5 chains of the degree of polymerization 10

20 chains of the degree of polymerization 100

50 chains of the degree of polymerization 500

1. Calculate the number and weight average degree of polymerization of the collection

of polymer chains

1. If these chains are polyethylene, what would be the corresponding number and

weight average molecular weights?