Physics of membranes

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Outline of Lectures

1. Introduction: motivation, molecules, interactions, self-assembly, curvature
2. Fluctuations: fluid, solid membranes; tensed membranes (pores)
3. Interactions of membranes: direct energetic, fluctuations
4. Mixed membranes: vesicles, biological cells – shape and fluctuation

References

1. *Statistical Thermodynamics of Surfaces, Interfaces and Membranes*, S. A. Safran, Addison Wesley, 1994
2. *Principles of Condensed Matter Physics*, P. Chaikin and T. Lubensky, Cambridge Press, 1995.
3. *Intermolecular and Surface Forces*, J. Israelachvili, Academic Press, 1992.
4. *The Colloidal Domain: Where Physics, Chemistry, Biology and Technology Meet*, F. Evans and H. Wennerstrom, Wiley, 1994.
5. *Mechanics of the Cell,* D. Boal, Cambridge 2002.