Simulations of collective phenomena in lipid membranes

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Collective phenomena in lipid membranes – like lateral phase transitions, fusion and fission – involve a simultaneous, collective arrangement of many lipid molecules. Their molecular reaction pathways as well as the underlying energetics remain an ongoing debate – the relevant length-scale typically lies below the diffraction limit. In the right hands, or with the right ideas, computers can be a powerful scientific tool which allow insight in both structure and dynamics of molecular systems that are currently unavailable to experiments. Here, I will illustrate the application of (coarse grained) molecular dynamics simulations in studying collective phenomena in lipid membranes.

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