

Dr. Philip J. Camp
Senior Lecturer in Chemical Physics

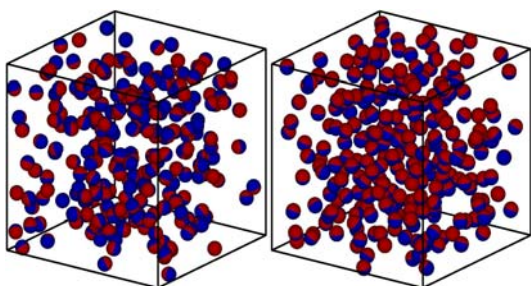
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Research interests: structure, dynamics, and phase equilibria in complex fluids; computer simulations and statistical mechanics.

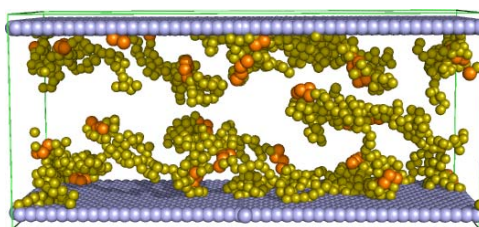


We study the properties of complex fluids such as colloidal suspensions, ferrofluids, liquid crystals, amphiphile solutions, polymers, and ionic fluids. Using computational and theoretical techniques, we determine the connections between the structure, dynamics, and phase behaviour of complex fluids, and the properties of the constituent molecules. Simple molecular models are constructed that capture the essential characteristics of real systems. We then study these models using computational techniques such as Monte Carlo, molecular dynamics, and Brownian dynamics simulations. We also employ analytical approaches from statistical mechanics. These studies yield unique insights on the properties of fluids, and help forge universal relationships between the microscopic and macroscopic properties of matter.

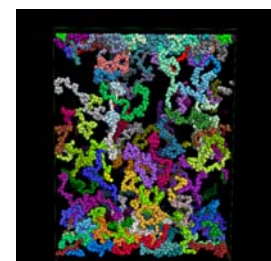
CURRENT PROJECTS



Ferrofluids

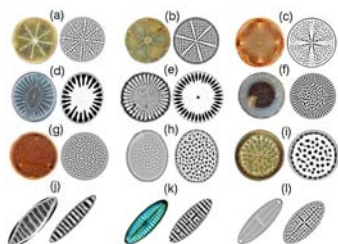


Friction

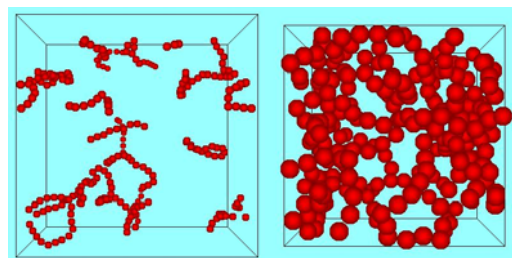


Polymer adsorption

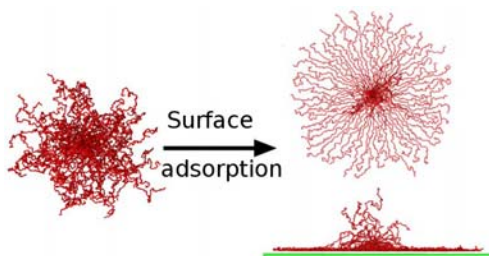
SELECTED RECENT PUBLICATIONS



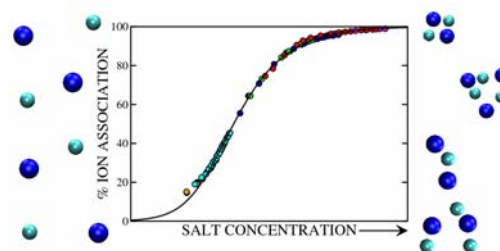
Diatom structures templated by phase-separated fluids, L. Lenoci and P. J. Camp, *Langmuir* **24**, 217 (2008).



Vapour-liquid phase transition of dipolar particles, G. Ganzenmüller, G. N. Patey, and P. J. Camp, *Molecular Physics* **107**, 403 (2009).



Adsorption of star polymers: computer simulations, A. Chremos, P. J. Camp, E. Glynos, and V. Koutsos, *Soft Matter* **6**, 1483 (2010).



Ion association in low-polarity solvents: comparisons between theory, simulation, and experiment, C. Valeriani, P. J. Camp, J. W. Zwaniikken, R. van Roij, and M. Dijkstra, *Soft Matter* **6**, 2793 (2010).