



## Dynamics, Rheology and Critical Properties of Colloidal Fluid Mixtures

By Zausch, Jochen

Condition: New. Publisher/Verlag: Südwestdeutscher Verlag für Hochschulschriften | Molecular Dynamics Studies in Equilibrium and Under Shear | Liquids under the influence of external fields exhibit a wide range of intriguing phenomena that can be markedly different from the behaviour of a quiescent system. This work considers two different systems - a glassforming Yukawa system and a colloid-polymer mixture - by Molecular Dynamics computer simulations. The former consists of a 50-50 binary mixture of differently-sized, like-charged colloids interacting via a screened Coulomb (Yukawa) potential. Near the glass transition the influence of an external shear field is studied. In particular, the transition from elastic response to plastic flow is of interest. The obtained results are important for advancing new theoretical approaches in the framework of the mode-coupling theory of the glass transition. Furthermore, they suggest new experimental investigations on colloidal systems. As second system a colloid-polymer mixture is studied in the context of its behaviour near the critical point of phase separation. Based on the Asakura-Oosawa model a new effective model with soft interaction potentials is introduced and characterised in equilibrium. Finally its suitability for shear simulations is shown. | Format: Paperback | 213 gr | 220x150x8 mm | 148 pp.



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