

Characterization of a cluster Monte Carlo algorithm for colloidal suspensions

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The geometric particle cluster algorithm (GPCA) developed in [1] is discussed and the efficiency is analyzed by investigating various cluster size distributions. This algorithm is an extension of the GCA by Heringa and Blöte [2], the cluster algorithm by Dress and Krauth [3] as well as the method by Liu and Luijten [4]. It is capable of efficiently simulating a mixture of spherical colloids immersed in a binary liquid. Near the demixing transition of the medium, the colloidal particles interact via fluctuation-induced critical Casimir forces, that lead to interesting behavior and also has been investigated experimentally recently [5,6]. We present first results obtained in the framework of a recent Bachelor thesis [7].

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