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CORRECTION

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Correction: Polymer-enforced crystallization of a eutectic binary hard sphere mixture

Anna Kozina,†[a] Dominik Sagawe,[a] Pedro Díaz-Leyva,‡[ab] Eckhard Bartsch*[ab] and Thomas Palberg*[c]

Correction for 'Polymer-enforced crystallization of a eutectic binary hard sphere mixture' by Anna Kozina *et al.*, *Soft Matter*, 2012, **8**, 627–630.

In our paper,[1] we reported the phase behavior of binary hard sphere mixtures of size ratio $\Gamma = 0.785$ to be eutectic without and with added non-adsorbing polymer. In the purely repulsive samples, access to the complete phase diagram in the volume fraction–composition plane was barred due to a kinetic glass transition. We could, however remove this obstacle by introducing a depletion attraction of sufficient strength and obtain all phases theoretically predicted for a size ratio of $\Gamma = 0.8$ [2] including coexisting fcc crystals of both small and large component. In this paper, we had determined the size ratio of large to small spheres from the ratio of hydrodynamic radii.

In a recent paper,[3] we have systematically synthesized a large variety of polystyrene micro-gels of different sizes and degrees of cross-linking. For these, we studied the relation of dry particle sizes, swelling ratios in the good solvent 2-ethylnaphthalene, phase boundaries and light scattering properties. We further discussed hydrodynamic radii from dynamic light scattering, optical radii from static light scattering on dilute samples, effective interaction radii determined from static light scattering experiments in either fluid or crystal phase combined with swelling ratios determined from coexistence region mapping[4] and hardness parameters obtained from rheological measurements.[5] We found that, in principle, fits of the concentration-dependent fluid static structure factor by theoretical expressions based on the Verlet–Weis-corrected Percus–Yevick integral equation for polydisperse HS give the most reliable effective particle sizes and thus size ratios. This can be attributed to the fact that this approach neither suffers from surface fuzziness influencing form factor measurements or determinations of hydrodynamic radii nor from polydispersity shifting the freezing transition and inducing fractionation effects.

From this study, we obtained a corrected size ratio of $\Gamma = 0.74$ for the binary mixture used in our paper. Using this value, a minimal shift occurs for the position of the theoretically expected glass transition line, which, however, still lies above the experimentally determined one which is responsible for the restriction of the actually observable region of the phase diagram. Most importantly, however, the phase diagram predicted for $\Gamma = 0.74$[6] also shows a purely eutectic behavior. Therefore, the main results and the conclusions of our paper remain unaffected.

The Royal Society of Chemistry apologises for these errors and any consequent inconvenience to authors and readers.

Notes and references

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[a] *Institut für Makromolekulare Chemie, Albert-Ludwigs-Universität Freiburg, D-79104, Freiburg, Germany*
[b] *Institut für Physikalische Chemie, Albert-Ludwigs-Universität Freiburg, D-79104, Freiburg, Germany*
[c] *Institut für Physik, Johannes Gutenberg Universität Mainz, D-55128, Mainz, Germany*
† Present address: Instituto Nacional de Investigaciones Nucleares, 52750 La Marquesa Edo.Mex., Mexico.
‡ Present address: Departamento de Física, Universidad Autónoma Metropolitana, Iztapalapa, 09340 México, D.F., Mexico.