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[926] Spontaneous deswelling of pNIPAM microgels at high concentrations

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Polydisperse suspensions of pNIPAM microgel particles show a unique, spontaneous particle deswelling behavior. Beyond a critical concentration, the largest and softest microgels deswell and thereby reduce the polydispersity of the suspension. We have recently unraveled the mechanism of this spontaneous deswelling triggered by the percolation of the counterion clouds of the microgel particles, which leads to an increase of free counterions and osmotic pressure outside but not inside the microgel particles. We find particles to deswell when the resulting osmotic pressure difference between the inside and the outside becomes larger than their bulk modulus. We also find this spontaneous particle deswelling to affect the phase behavior of the studied suspensions.

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