

Sedimentation-diffusion equilibrium of charged colloids: experimental evidence for a macroscopic electric field

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We investigate a recent prediction [R. van Roij, *J. Phys: Condensed Matter* **15** (2003) S3569] for the existence of a macroscopic electric field in the sedimentation-diffusion equilibrium profile which would cause strong deviations from the barometric profile for non-interacting particles. Experimental high-resolution density profiles from ultracentrifugation on well-defined, charged silica spheres will be discussed and compared to limiting laws for the equilibrium profile and electric field.