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Concentration measurement of particles by number fluctuation in dynamic light backscattering

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Abstract: The noninvasive optical technique of dynamic light scattering (DLS) is routinely applied to the size measurement of particles undergoing Brownian motion. Theoretically, in addition to the mean particle size the concentration of the particles can be measured from an extra decay in the intensity autocorrelation function in the case of very low concentration. To the authors' knowledge, however, the experimental results of the concentration measurements are always unsatisfactory due to the practical difficulty of accurate definition of the scattering volume. In this paper, we propose a concentration measuring method using particle number fluctuation with Dynamic Light Back-Scattering (DLBS) technique. The DLBS technique can define the scattering volume very well. It is therefore promising for the particle concentration measurement.

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