

Abstract Submitted  
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**Raman Correlation Spectroscopy**<sup>1</sup> EDWARD VAN KEUREN,  
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University, Department of Physics — We have developed a simple method for  
measurement of diffusion coefficients of specific components in complex mixtures  
of suspended particles in a liquid. The method, a variation of photon correlation  
spectroscopy (PCS), uses temporal fluctuations of Raman scattered light to char-  
acterize the particle Brownian motion. This is possible due to the key fact that  
Raman scattering is a coherent process, which is necessary for meaningful photon  
autocorrelation functions to be obtained. The time autocorrelation functions of Ra-  
man emission lines will yield information similar to that obtained by PCS. However,  
since the scattering at a particular wavelength is usually specific to only one type  
of molecule, only the diffusion coefficient of the particles containing that chemical  
species will be measured. We demonstrate this method with several multicomponent  
nanoparticle dispersions.

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