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Dynamics of concentration fluctuations in nanocolloidal suspensions. ALEXIS PAYNE, ANA OPRISAN, College of Charleston — We studied the dynamics of concentration fluctuations in nanocolloidal suspensions using the shadowgraph visualization technique. The set up involved a CCD camera capturing the fluctuations occurring in a sample cell undergoing a free diffusion process. We performed three experiments with different gold, silver, and silica colloidal suspensions. For each trial, the colloid's power spectrum, structure factor, and correlation time were found using a dynamic structure method. Each experiment's fluctuations varied significantly from the others. This was due to variations in particle size, concentration and possible plasmonic interactions. All the nanocolloidal suspensions' structure factors and correlation times followed the expected power laws. From the correlation time, the diffusion coefficient for all three colloidal suspensions was calculated which coincided with expected results.

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