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Divergent four-point dynamic density correlation function of a glassy suspension[1] GRZEGORZ SZAMEL, ELIJAH FLENNER, Department of Chemistry, Colorado State University — We use a diagrammatic formulation of the dynamics of interacting Brownian particles[2] to study a four-point dynamic density correlation function of a glassy colloidal suspension. We re-sum a class of diagrams which separate into two disconnected components upon cutting a single propagator. The resulting formula for the four-point correlation function can be expressed in terms of three-point functions closely related to the three-point susceptibility introduced by Biroli *et al.*[3] and the standard two-point correlation function. We numerically evaluate the four-point function and the associated dynamic correlation length. Both the amplitude of the four-point function and the correlation length diverge at the mode-coupling transition.

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[2]G. Szamel, J. Chem. Phys. **127**, 084515 (2007).
[3]G. Biroli *et al.*, Phys. Rev. Lett. **97**, 195701 (2006).

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