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Characteristic length scale of the inhomogeneous mode-coupling theory: beyond scaling predictions ELIJAH FLENNER, GRZEGORZ SZAMEL, Colorado State University - Chemistry Department — The inhomogenous mode-coupling theory of Biroli *et al.* [Phys. Rev. Lett. **97**, 195701 (2006)] allows for the identification of a characteristic length scale that diverges as the mode-coupling transition is approached. We numerically investigate this length scale as a function of time, wave-vector, and distance from the transition by examining the small $\mathbf{q}$ expansion of the dynamic susceptibility $\xi_{\mathbf{q}}(\mathbf{k};\mathbf{t})$ defined by Biroli *et al.* We confirm the scaling predictions of Biroli *et al.*. In addition, we show that the characteristic length is in qualitative agreement with simulations where the length scale is obtained from four-point correlation functions. Finally, we show that the length scale has virtually no k dependence and thus it is well defined. The k-independence of the length contrasts with the very strong k dependence of $q \to 0$ limit of the dynamic susceptibility.

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