position of the peak and deserve further scrutiny. A detailed comparison of this model to our data will be presented in a subsequent paper. In any case, we believe that for a proper prediction of $\chi_3(\omega, T)$ close to T_g, a theory of supercooled liquids able to account for dynamical correlations is required.

To conclude, we have provided the first direct experimental evidence that a supercooled liquid responds in an increasingly non-linear way approaching the glass transition. By measuring the frequency dependent third harmonics response $\chi_3(\omega, T)$ to a periodic electric field, which is tightly related to the dynamical correlation length, we showed that the number of correlated molecules increases as T decreases towards T_g, confirmed the validity of previous estimates, and found that χ_3 scales as a function of $\omega\tau$. This opens a new path for probing the spatial correlations in both fragile and strong supercooled liquids and in the aging regime of glasses and spin-glasses, by systematic studies of non-linear responses. Future investigations along these lines might help to unveil the possible critical nature of the glass transition.

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