

MAR13-2012-002022

Abstract for an Invited Paper  
for the MAR13 Meeting of  
the American Physical Society

### **Evidence for non-diverging time-scales in glass-forming liquids<sup>1</sup>**

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One perceived important signature of the “ideal” glass transition and of the complex fluid nature of glass-forming liquids remains the apparent divergence of the dynamics at temperatures above zero Kelvin. Recently, however, this perception has been increasingly challenged both through experiments and in new theories of the dynamics of glass forming systems. In this presentation we summarize some of the prior evidence suggesting that time scales actually do not diverge in glasses that are aged into equilibrium, perhaps 15 K below the conventional glass transition temperature  $T_g$ . We then show new results from an extremely densified glass, 20 Ma old Jamaican amber, in which we were able to obtain the upper bound to the relaxation times through a step-wise temperature scan in which the stress relaxation response of the amber was measured both below and above the fictive temperature  $T_F$ . We find that in the case of the upper bound responses at  $T > T_F$ , there is a strong deviation of the response from the Super-Arrhenius Vogel-Fulcher behavior and this persists to the fictive temperature which is some 33.8 K below  $T_g$ . The results are compared to the parabolic model of Chandler and co-workers and we find the model to be consistent with our results if the value of  $T_x$  in the model is taken to be the calorimetric glass transition temperature. The significance of the results will be discussed.

<sup>1</sup>We acknowledge NSF grants DMR-0804438 and DMR-1207070 for support of this work