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Role of quantum effects in the glass transition[1] VLADIMIR NOVIKOV, ALEXEI SOKOLOV, Department of Chemistry, University of Tennessee, Knoxville, TN 37996 and Chemical Sciences Division, ORNL, Oak Ridge, TN 37831 — It is shown that quantum effects lead to a significant decrease of the glass transition temperature T_g with respect to the melting temperature T_m, so that the ratio T_g/T_m can be much smaller than the typical value of 2/3 in materials where T_g is near or below $\sim$ 60 K. Furthermore, it is demonstrated that the viscosity or structural relaxation time in such low temperature glass-formers should exhibit highly unusual temperature dependence, namely a decrease of the apparent activation energy upon approaching T_g (instead of traditional increase).

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