Microsecond molecular dynamics simulations of stress relaxation 
and slow quench in silica melts and glasses J. MATTHEW D. LANE, Sandia 
National Laboratories — Quench rates and stress relaxation in molecular dynamics 
simulations of glasses are usually studied on time-scales which are many orders 
of magnitude faster that those in experiment. We present results from relaxation 
of hydrostatic compressive stress in silica glass using classical molecular dynamics 
simulations. Structural variation will be discussed as a function of quench rate 
for glasses quenched 2 to 3 orders of magnitude slower than previously reported. 
Stress relaxation curves plotted in log t show time-temperature superposition holds 
over a wide-range of temperatures for 3% initial volume compression. Silica melts 
and glasses were modeled with the BKS interatomic potential and were produced 
through a melt-quench process. Sandia National Laboratories is a multi-program 
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