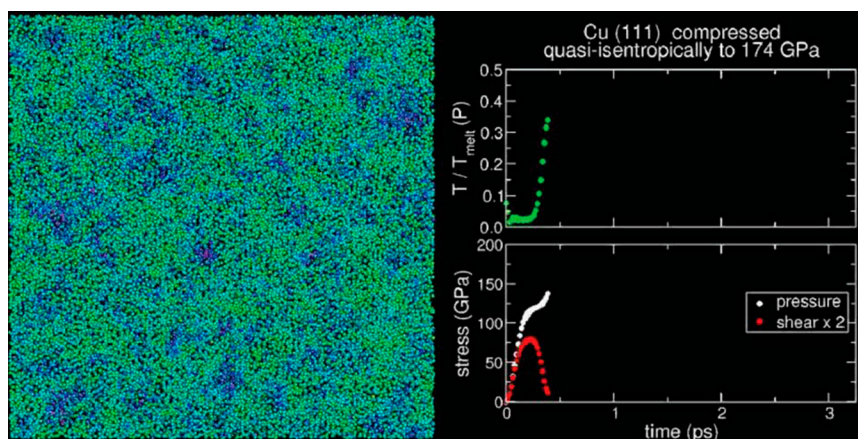


Supporting Information

Levitas and Ravelo 10.1073/pnas.1203285109



Movie S1. Cu single crystal compressed quasi-isotropically along the $\langle 111 \rangle$ direction (out of plane) at a strain rate of $3 \times 10^{11} \text{ s}^{-1}$ to a final uniaxial strain of 33% ($\sigma_1 = 174 \text{ GPa}$) is shown. Axis x is along the $\langle 110 \rangle$ direction and axis y is along the $\langle 112 \rangle$ direction. The cross section of atomic configuration in the left panel is $10 \text{ nm} \times 10 \text{ nm}$. Only atoms within a 1.7 nm thick slice are shown for clarity. Atoms are colored according to $q_6(1, 2)$ (red atoms are solid, green atoms are liquid). The right panel shows the time evolution of the temperature (normalized by the equilibrium melt temperature at the corresponding pressure), pressure (p) and shear stress (τ).

1 Ten Wolde PR, Ruiz-Montero MJ, Frankel D (1995) Numerical evidence for bcc ordering at the surface of a critical fcc nucleus. *Phys Rev Lett* 75:2714–2717.

2 Steinhardt PJ, Nelson DR, Ronchetti M (1983) Bond-orientational order in liquids and glasses. *Phys Rev B Condens Matter Mater Phys* 28:784–805.

[Movie S1 \(MOV\)](#)