Figure 1. Participation ratio (PR) as a function of the gap distance cutoff $h_{\text{cut}}$ for the logarithmic potential for a typical sample. Curves are plotted for $h_{\text{cut}} = a h_{\text{peak}}$ with $a$ ranging from 2 to 4, where $h_{\text{peak}}$ is the size of the gap at the first peak of the gap distribution. Samples are obtained by compressing the same initial packing of $N = 8192$ particles in $d = 3$ from a starting packing fraction of $\phi = 0.55$. Data are plotted for $\phi = 0.65722$. The PR does not show any significant difference as the cutoff distance changes over the full frequency range.

Figure 2. Dependence of $\omega^*$ on $PR_c$, the cutoff threshold for the participation ratio, $PR_c = 0.2$ (green), 0.18 (yellow), 0.15 (orange), 0.12 (red), 0.1 (magenta), 0.08 (blue). The curves are plotted for different system sizes from decompressions (squares $N = 4096$) and compressions (circles $N = 1024$, upward triangles $N = 2048$, downward triangles $N = 4096$, diamonds $N = 8192$). The scaling relation between $\omega^*$ and $\Delta \phi$ is not affected by the choice of $PR_c$ for $8 \times 10^{-2} < PR_c < 2 \times 10^{-1}$, values which correspond to 8% and 20% participating particles respectively.