

Title: Supplementary Movie 1

Description: The process of thermally-activated homogeneous nucleation inside dislocation-free grains corresponding to Figs. 6a and b. This movie covers a volume of $150\text{ }\mu\text{m}\times 150\text{ }\mu\text{m}\times 100\text{ }\mu\text{m}$) with the time interval of $\sim 300\text{ s}$. Large orange spheres represent bcc particles, whereas large blue spheres represent defects or their clusters ($Q_6 < 0.35$).

Title: Supplementary Movie 2

Description: The same as Movie S1 but with a smaller volume ($150\text{ }\mu\text{m}\times 150\text{ }\mu\text{m}\times 20\text{ }\mu\text{m}$) and a higher time resolution (the time interval of $\sim 2.5\text{ s}$).