

Supplementary Material

Transition of deformation mechanisms in nanotwinned single crystalline SiC

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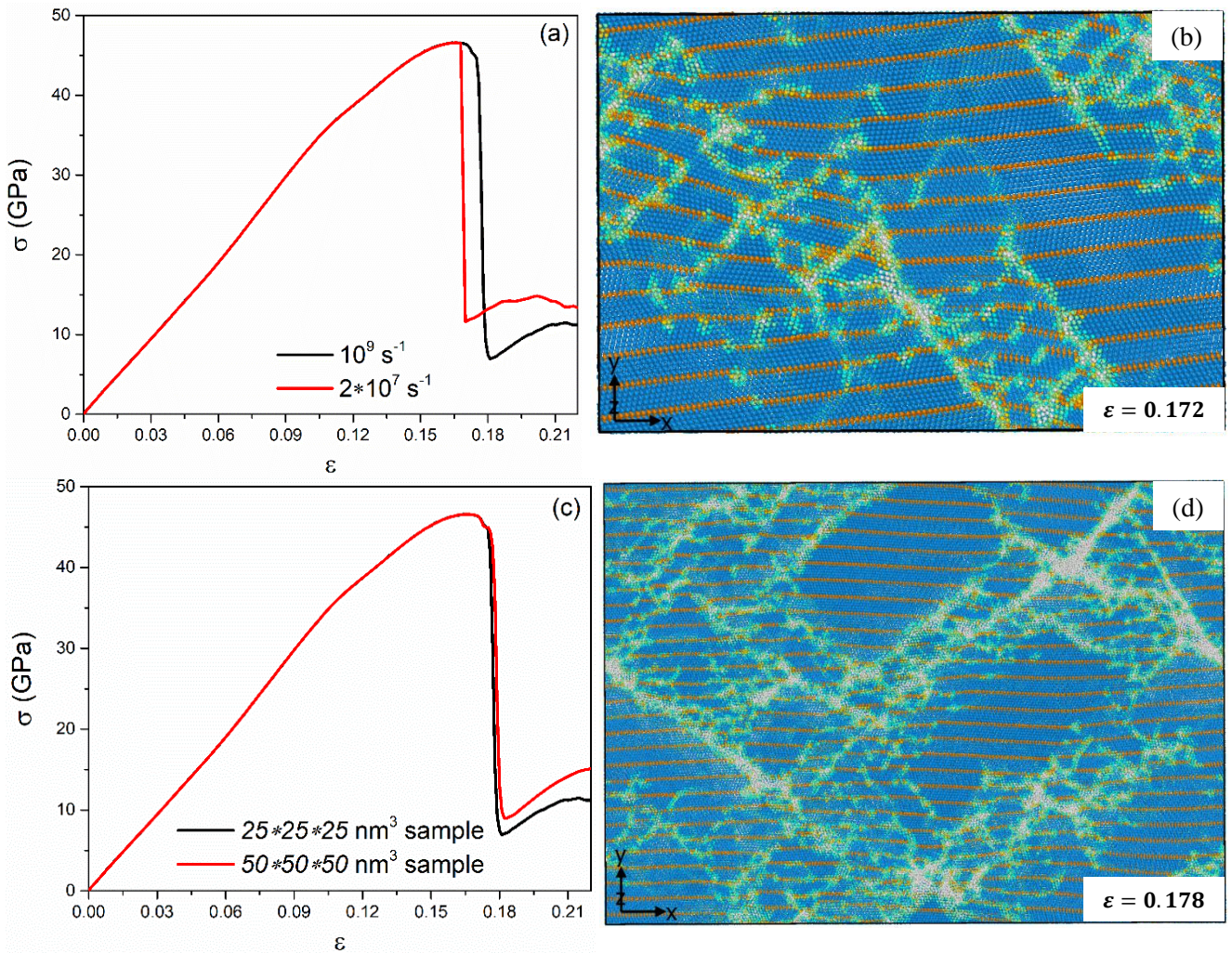


Figure S1 Uniaxial stress-strain and deformation behavior of the nanotwinned single crystalline 3C-SiC ceramic with $\lambda = 1.5$ nm subjected to compressive stress loading at 300 K, (a-b) Sample with the cubic length size of 25 nm, containing ~ 1.5 million atoms, at two strain rates of 10^9 s^{-1} and $2 \times 10^7 \text{ s}^{-1}$; (c-d) Samples with the cubic length size of 25 nm and 50 nm,

containing ~ 12 million atoms, at the strain rate of 10^9 s^{-1} . Deformation bands and shear-induced fracture is less pronounced at lower strain rates as well as in the bigger sample, however, the strength is the same.

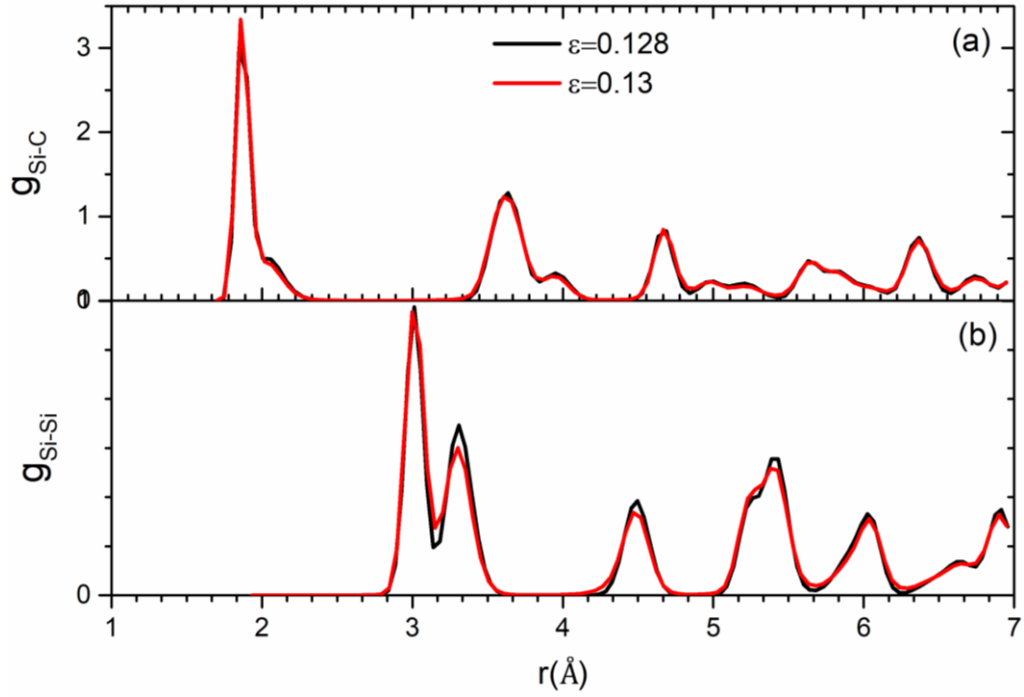


Figure S2 Partial RDF for the nanotwinned sample with $\lambda = 1.5 \text{ nm}$ during uniaxial tensile loading.