

# Deformation Behavior of Body-Centered Cubic Lattice Formed in ABA-type Triblock Copolymer

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A body-centered cubic (BCC) lattice is a crystal unit cell structure observed in various materials including metals, inorganics, and polymers. The deformation behavior of the BCC lattice in metals has been well elucidated, whereas that of polymers remains unclear. We used a microphase-separated copolymer with randomly oriented grains wherein spherical phases are packed in the BCC lattice. The strain value of polymer showed much larger than for metals and inorganics. Small-angle X-ray scattering measurement revealed that the copolymer showed affine deformation under a strain of 1.8. Atomic force microscope revealed that spectacular rearrangement as shown below and “push-and-shove” deformation occurred locally. To the best of our knowledge, these structural changes have not yet been observed in other materials with the BCC lattice. These differences in the behavior of metals

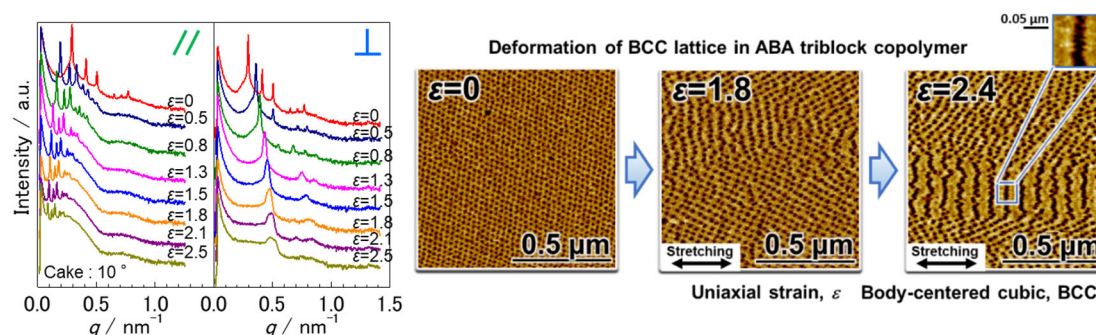


Figure 1. SAXS profiles and AFM images of SEBS films at various strains.

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## References

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