Structural evolution in bulk metallic glass under high-temperature tension

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The tensile behavior of a Cu46Zr46Al8 bulk metallic glass (BMG) at elevated temperatures has been studied using in situ x-ray diffraction and molecular dynamics simulation. It is demonstrated that excess open volume is generated during elastic deformation and accumulated enough before plastic flow starts. The open volume almost keeps constant during homogeneous deformation, suggesting that a high content of open volume is a key point for developing BMGs with pronounced tensile plasticity.

References