

# Paradoxical phenomena between the homogeneous and inhomogeneous deformation of bulk amorphous alloys

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## Abstract

Experiments in binary alloys demonstrate that metallic glasses exhibiting more plastic strain during homogeneous deformation tend to show lower global plasticity during inhomogeneous deformation. Testing of Cu-Zr binary alloys supports the hypothesis that the formation energy of a shear transformation zone, as extracted from experimental data, is related to the homogeneous flow rate. We also report the microstructural aspects that control the global plasticity of metallic glasses in the light of structural disordering, softening and shear localization.

**Keywords** : amorphous alloy, structural disordering, free volume, shear localization, plasticity