Supplementary Material

Figure S1. Representative load-displacement curves from nanoindentation experiments with indenters having various centerline-to-face angles: The loading portion of the *P*-*h* curves obtained at different P_{max} overlapped one another perfectly, proving that the tests were remarkably reproducible.

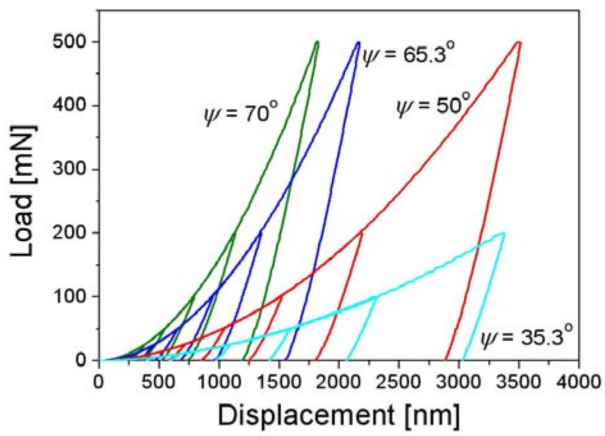


Figure S2. Representative examples of SEM micrographs of nanoindentations made up to different peak loads with different indenters.

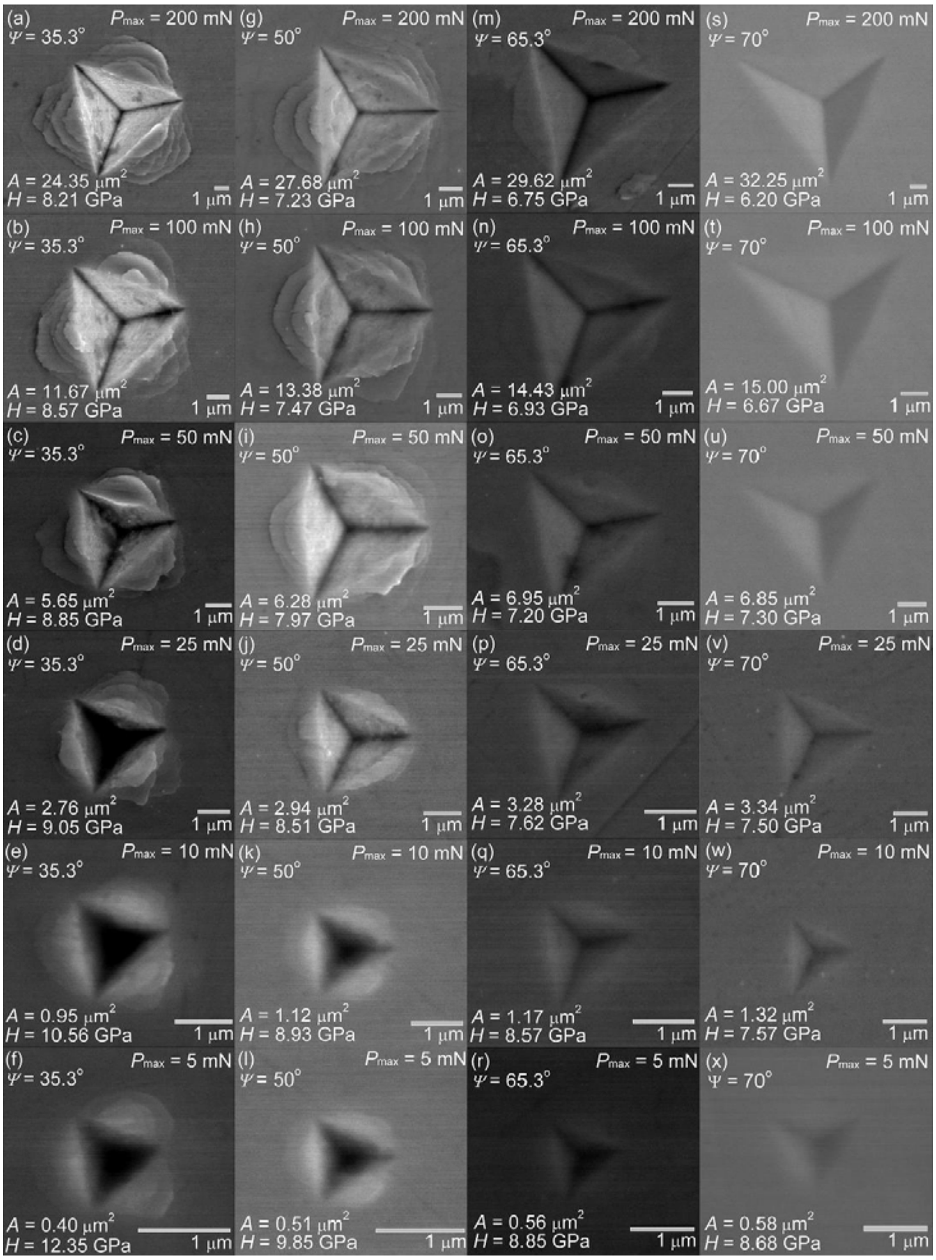
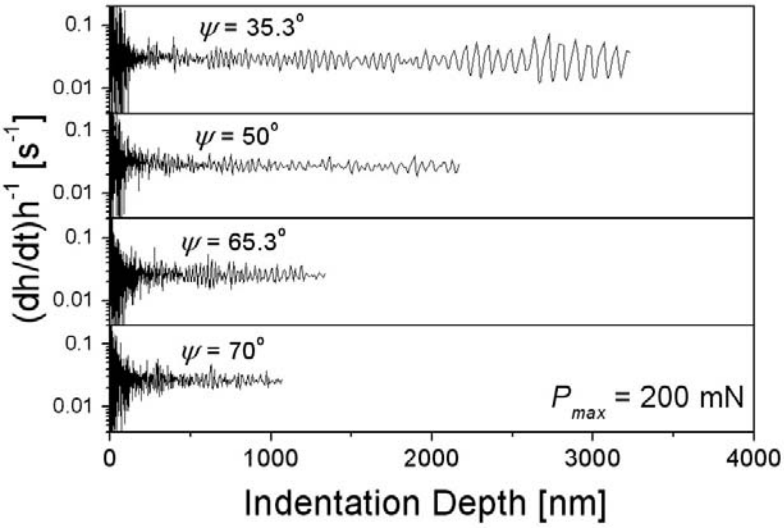


Figure S3. Variation in indentation strain during indentation testing.



Before closing, it is constructive to consider the effect of 'volume' size from a perspective of the potential energy landscape (PEL). Harmon *et al*. [Harmon JS, Demetrious MD, Johnson WD, Samwer K. Phys. Rev. Lett. 2007;99:135502] revealed that the kinetics for anelastic-to-plastic transition in metallic glasses can be separated into slow α and fast β relaxation process that are related to irreversible and reversible hopping respectively. From this perspective, with decreasing 'volume,' the number of α events increases but their amplitude decreases, both of which are strongly dependent on the size and density of isolated STZs since the events may be directly linked to the collapse of the STZ-matrix coherency condition. In contrast, the amplitude of reversible β events is more or less independent of the volume size.