

FIG. S1: Schematic of the FEA, with weak boundary conditions at  $x = 0$ . The wedge half-angle ( $\alpha$ ) and indentation depth  $\Delta$  are also indicated.

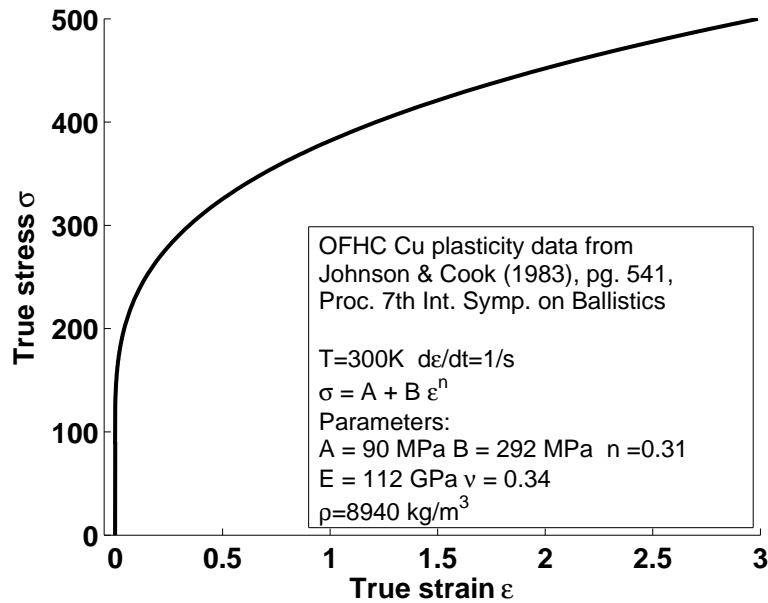


FIG. S2: Uniaxial stress-strain curve and mechanical properties used for the finite element simulation. The maximum interfacial shear stress,  $\tau_{max} = Y/\sqrt{3}$  where  $Y = 275 \text{ MPa}$ .

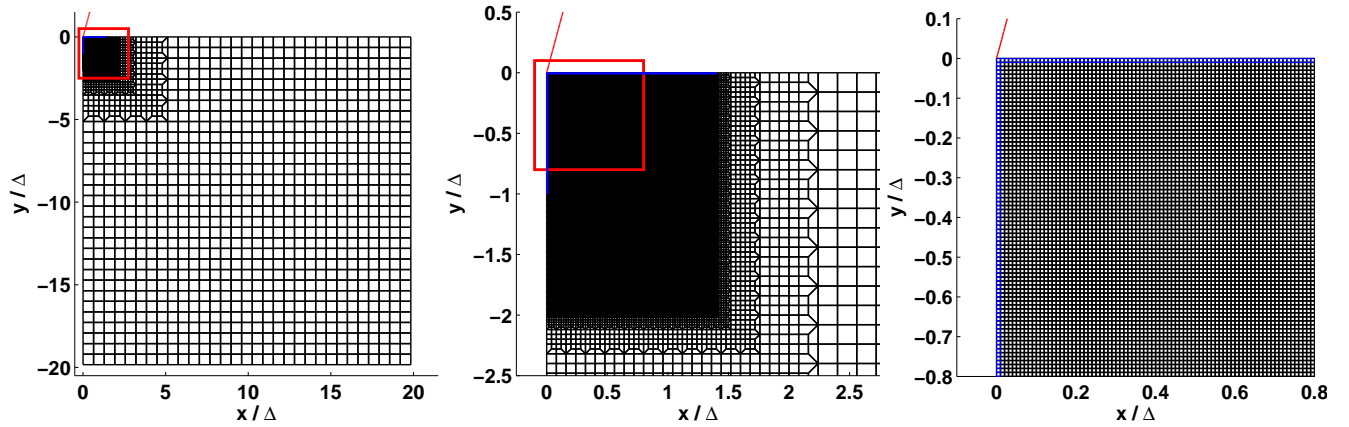


FIG. S3: Optimized FEA mesh used for  $2\alpha = 30^\circ$  analysis at three different magnifications.

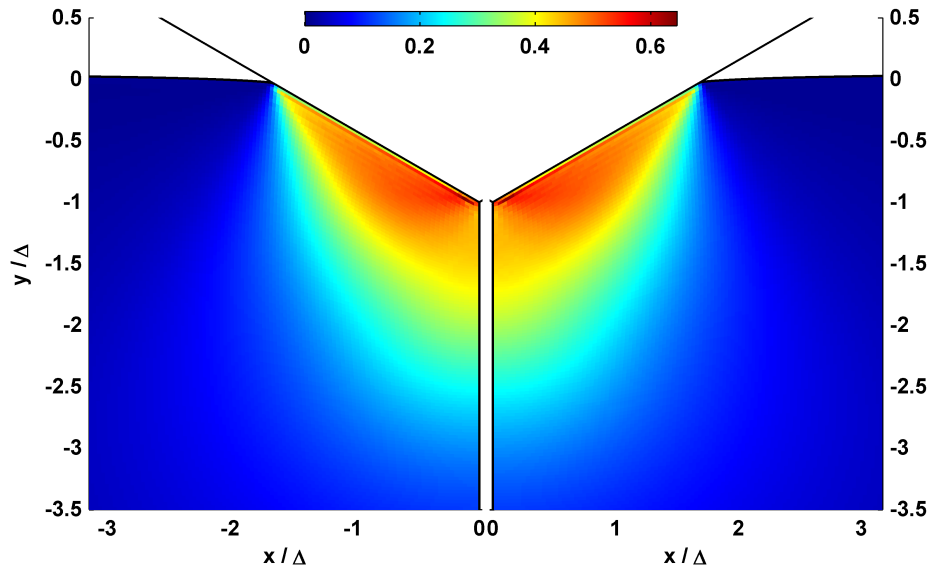


FIG. S4: Plastic strains obtained using FEA for a wedge angle ( $2\alpha$ ) of  $120^\circ$  using strong (left) and weak (right) boundary conditions. The strain patterns are visually almost indistinguishable; this is also confirmed by an element-by-element comparison of the two results.