



Fig. 110 Nonlinear bifurcation buckling mode of the 4-mode-optimized **+mode 1** axisymmetrically **imperfect unstiffened** equivalent ellipsoidal shell loaded by the external design pressure, $p = 460$ psi. This $n=9$ mode is used as a "trigger" non-axisymmetric imperfection shape (very small amplitude: $Wimp = 0.001$ inch) to obtain nonlinear non-axisymmetric collapse of the shell. The nonlinear non-axisymmetric elastic load-deflection curve is shown as the third trace (right-side-up triangles) in the previous figure. This figure is analogous to Fig. 85.