

- Undeformed: Equivalent unstiffened ellipsoidal shell with  $t(\text{apex})=0.6$  inch (Seg. 1 in Fig. 2)  
 — Deformed: This is the mode 1 axisymmetric imperfection shape. linear  $p(\text{crit}) = 1300.8$  psi

**Table 78 unstiffened shell,  $t(\text{apex})=0.6$  in: mode 1 axisymmetric imperfection**

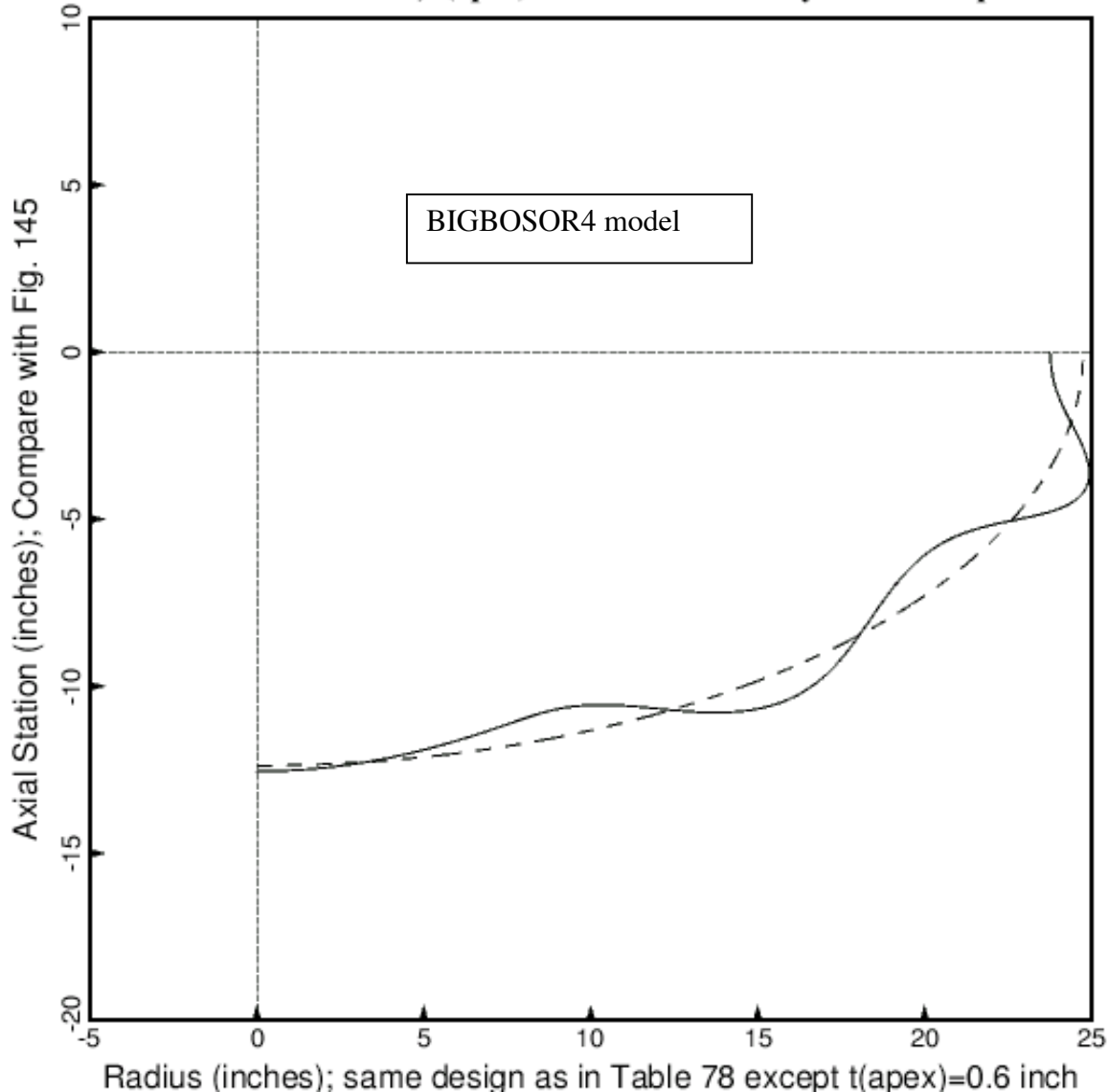


Fig. 226 Axisymmetric **mode 1** linear buckling mode from BIGBOSOR4 for the **optimized unstiffened equivalent ellipsoidal shell with the thick apex of uniform thickness,  $t(\text{apex}) = 0.6$  inch; the optimum design is listed in Table 78 [except  $t(\text{apex})$ , which has been arbitrarily increased from 0.4 inch to 0.6 inch].** The shell with  $t(\text{apex})=0.4$  inch was optimized with plus and minus axisymmetric buckling modal imperfection shapes, mode 1 and mode 2 with amplitude, **Wimp=0.2** inch (Table 78). With  $t(\text{apex}) = 0.4$  inch (Fig. 145) the shell apex is not thick enough to prevent the maximum linear buckling modal displacement from occurring at the pole of the shell. However, with  $t(\text{apex})$  increased from 0.4 inch to 0.6 inch the mode 1 axisymmetric linear buckling mode shown here has maximum amplitude in the region away from the apex with very little normal displacement at and in the immediate neighborhood of the apex.