



Fig. 146 Axisymmetric **mode 2** linear buckling mode from BIGBOSOR4 for the **optimized unstiffened equivalent ellipsoidal shell with the thick apex of uniform thickness,  $t(\text{apex}) = 0.4$  inch; the optimum design is listed in Table 78.** The shell was optimized with plus and minus axisymmetric buckling modal imperfection shapes, mode 1 and mode 2 with amplitude, **Wimp=0.2** inch. Notice that the shell apex is not thick enough to prevent the maximum linear buckling modal displacement from occurring at the pole of the shell. However, the mode 2 linear axisymmetric buckling mode shown here has significant amplitude in the region away from the apex, unlike the mode 2 axisymmetric linear buckling mode displayed in Fig. 75. It turns out that this shell is still under-designed, but much less so than the design listed for the unstiffened imperfect shell in Table 33: compare the non-axisymmetric collapse in Fig. 94 with that in Fig. 161.