



Fig. 229 Axisymmetric **mode 1** linear buckling mode from BIGBOSOR4 for the **optimized unstiffened equivalent ellipsoidal shell with the thick apex of uniform thickness,  $t(\text{apex}) = 0.61996$  inch; the optimum design is listed in Table 93.** The shell, with the lower bound  $t_{\min}(\text{apex}) = 0.6$  inch, was optimized with plus and minus axisymmetric buckling modal imperfection shapes, mode 1 and mode 2 with amplitude, **Wimp=0.2** inch. 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 0.61996 inch (the optimized value of  $t(\text{apex})$ ) the mode 1 axisymmetric linear buckling mode shown here has maximum amplitude in the region away from the apex with much smaller normal displacement at and in the immediate neighborhood of the apex. Compare with Fig. 226. Also, compare with Fig. 74, pertaining to the optimized shell with a nonuniform  $t(\text{apex})$ .