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Selected Publications:

Khot, N. S., Venkayya, V. B., and Berke, L., Buckling and Postbuckling Behavior of Initially Imperfect Orthotropic Cylindrical Shells Under Axial Compression and Internal Pressure, IUTAM Conf. on Instability of Continuous Systems, September 1969.
Almroth's comments: The analysis of Reference C-3 [Koiter, W. T., The Effect of Axisymmetric Imperfections on the Buckling of Cylindrical Shells Under Axial Compression, Proc. K. Ned. Akad. Wet., Amsterdam, Ser. B, Vol. 6, 1963; also, Lockheed Missiles and Space Company, Rept. 6-90-63-86, August 1963] is extended through the addition of an internal pressure. It is shown that the internal pressure has a beneficial effect on the imperfection sensitivity. For the cases investigated, the Donnell and Sanders equations give essentially the same results.

N.S. Khot and V.B. Venkayya (Air Force Flight Dynamics Lab, Wright-Patterson AFB, Ohio), "Effect of Fiber Orientation on Initial Postbuckling Behavior and Imperfection Sensitivity of Composite Cylindrical Shells", Technical report AFFDL-TR-70-125, DTIC Accession Number: AD0720231, December 1970
ABSTRACT: Koiter's approach is used to formulate the influence of fiber orientation on the behavior of the cylindrical shell in the initial postbuckling region. Results are presented for three-layer composite cylindrical shells of either glass-epoxy or boron-epoxy subjected to uniform axial compressive load. The results show that the initial postbuckling coefficient that characterizes the extent of imperfection sensitivity of a structure is greater for the glass- epoxy shells than for the boron- epoxy shells. For the glass-epoxy cylinders the slope of the load vs. end-shortening curve in the initial postbuckling region is found to have high negative value, which is not significantly affected by the change in fiber orientation. This suggests that the buckling of a nearly perfect glass-epoxy cylinder under prescribed end-shortening will be catastrophic, regardless of fiber orientation. However, for the boron-epoxy cylinders the negative slope varies with the change in fiber orientation, and whether the failure will be catastrophic or not will depend on the fiber orientation.
Almroth's comments: In this paper the authors base their analysis on Koiter's general theory. In comparison to Reference C-6, shells with larger imperfection amplitude are included in the study. With an imperfection of about the size of the shell thickness, the advantage of using a fiber orientation close to optimum is totally eliminated.

Y . Bao, H.S. Tzou, and V.B. Venkayya 1998 Analysis of nonlinear piezothermoelastic laminated beams with electric and temperature effects, Journal of Sound and Vibration 209(3), 505-518.

Eastep, F. E., Tischler, V. A., Venkayya, V. B. and Knot, N. S. "Aeroelastic tailoring of composite structures". Journal of Aircraft. Vol. 36, No. 6, pp. 1041-1047, 1999.