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Analytic solutions of axisymmetric problems in elastic cylinders. (English) Zbl 0559.73071
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A general scheme encompassing expansion methods for the sleeve is presented: one homogeneous condition for each contour portion establishes real eigenvalues ensuring orthogonality to Fourier-Bessel expansions. Solutions by integral equations may be regarded as limiting cases, with summations replaced by integrations. Special attention is devoted to the alternative use of complex eigensolutions, subjected to two homogeneous conditions on the cylindrical boundary.

MSC:

74K15 Membranes

74B99 Elastic materials

Keywords:

analytic solutions; axisymmetric problems; elastic cylinders; expansion methods for the sleeve; real eigenvalues; orthogonality; Fourier-Bessel expansions; alternative use of complex eigensolutions; two homogeneous conditions

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