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Bending of laminated beams using Timoshenko model via nonlocal elasticity

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Abstract : In this paper, the bending of laminated beams using first order shear deformation theory via nonlocal elasticity is presented. The analysis is presented for static flexure of symmetric and anti-symmetric cross-ply laminated beams subjected to sinusoidal load. Governing equations and boundary conditions are obtained by using the principle of virtual work. Analytical solutions of bending for simply supported laminated beams are presented using this theory to illustrate the effect of nonlocal theory, and the influence of aspect ratio is examined.

Keywords : First-order shear deformation theory; bending, laminated beam, non local