**عنوان مقاله:**

Stability of micro-beam including Higher-Order Beam Theories under thermal and mechanical forces

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**خلاصه مقاله:**

This paper investigatesthe effects of thermal load and shear force on the buckling of nanobeams.Higherorder shear deformation beam theoriesare implementedand their predictions of the critical buckling load and postbuckled configurations are compared to those ofEuler-Bernoulli and Timoshenkobeam theories.The Eringen model for nonlocal elasticity is adopted to account formaterial discontinuity at the nano-scale and analytical solutionsfor critical buckling loads and post-buckling configurations are derived for each beam theory.Results show that thermal loadhas a more significant impact on the buckling behavior ofsimplysupported beams (SS) than it has onclamped-clamped (CC)beams. However, the nonlocal effect has more impact on C-C beams that it does on S-S beams.Moreover, it was found that the predictions obtained fromTimoshenko beam theoryare identical to those obtained using all higherorder shear deformation theories, suggesting that Timoshenko beam theory is sufficientto analyze buckling in nanobeams

**کلمات کلیدی:**

micro-beam,stability,Higher-order beam theories, Thermal loads

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