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Electro-mechanical shear buckling of piezoelectric nanoplate using modified couple stress theory based on simplified first order shear deformation theory

Mohammad Malikan

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**Highlights:**

- Shear buckling of piezoelectric nanoplate is analyzed based on modified couple stress theory.
- Nonlinear equations are found using simplified first order shear deformation theory.
- The critical shear load is obtained via closed-form solution with various boundary conditions.
- Increasing length scale parameter increases critical shear load.
- The effect of external electric voltage on the critical shear load occurring on the piezoelectric nanoplate is insignificant.

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