

## Vibration of Nonhomogeneous Timoshenko Nanobeam Resting on Winkler-Pasternak Foundation

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**Abstract :** This work investigates the vibration of nonhomogeneous Timoshenko nanobeam resting on the Winkler-Pasternak foundation. Eringen's nonlocal theory has been used to investigate small-scale effects. The Differential Quadrature method is used to obtain the frequency parameters with various classical boundary conditions. The nonhomogeneous beam model has been considered, where Young's modulus and density of the beam material vary linearly and quadratically. Convergence of frequency parameters is also discussed. The influence of mechanical properties and scaling parameters on vibration frequencies are investigated for different boundary conditions.

**Keywords :** Timoshenko beam, Eringen's nonlocal theory, differential quadrature method, nonhomogeneous nanobeam

**Conference Title :** ICRAAE 2023 : International Conference on Recent Advances in Acoustical Engineering

**Conference Location :** Bangkok, Thailand

**Conference Dates :** January 16-17, 2023