

عنوان مقاله:

Investigation of the Size Effect on the Nano-beam Type Piezoelectric Low Power Energy Harvesting

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خلاصه مقاله:

In this paper, size dependent beam type piezoelectric energy harvester is investigated. For this goal, first nonlinear formulation of isotropic piezoelectric Euler-Bernoulli nano-beam is developed based on the size-dependent piezoelectricity theory then special beam type piezoelectric energy harvester is probed for different parameters. Basic nonlinear equations of piezoelectric nano-beam are derived using principle of minimum of potential energy and variational method. To evaluate the formulation derived, static deformation and free vibration of the clamped-clamped piezoelectric nano-beam is investigated in the special case. The results of the formulation derived are investigated under different parameters, and particularly, the ability and performance of the beam type piezoelectric low power energy harvesting was evaluated in nanoscale.

کلمات کلیدی:

Piezoelectric, size effect, Euler, Bernoulli nano, Beam, Energy harvesting

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