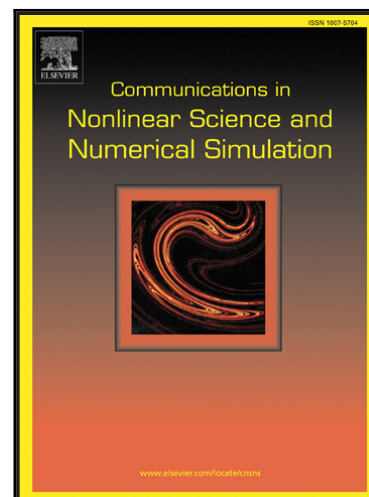


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Effect of size on the chaotic behavior of nano resonators

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Highlights

- Strain gradient theory is utilized to model the MEMS resonator.
- A new accurate lumped model is proposed for the actuation force.
- An analytical inequality in terms of the system parameters is developed by the Melnikov's method to identify the chaotic region.
- Numerical simulations are performed in order to investigate the effect of size on the chaotic regions.
- Strain gradient theory predicts occurrence of chaos at much lower amplitudes than classical theory.

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