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Dynamic analysis of size-dependent micro-beams with nonlinear elasticity under electrical actuation

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**Research Highlights**

- Nonlinear electro-dynamic analysis of size-dependent micro-beams is conducted;
- Effect of nonlinear elasticity on the electro-dynamic behaviour is highlighted;
- Size effect is considered by using modified couple stress theory;
- It is found traditional linear elastic analysis underestimates dynamic deflections;
- Neglecting nonlinear elasticity leads to over-predicted stiffness & pull-in voltage.

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