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Nonlinear analysis of galloping piezoelectric energy harvesters with inductive-resistive circuits for boundaries of analytical solutions

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Highlights

- Revelation and numerical validation of boundaries for analytical solutions based on Hopf bifurcation.
- Electromechanically decoupled model is proposed with the electrical damping and modified frequency.
- Electrical damping and inductance corresponding to Hopf bifurcation are derived to analyze the effects of the wind speed and electric circuit on Hopf bifurcation.
- The electrical damping determines the different responses with small and large initial conditions.

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