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Stability approach to the fractional variational iteration method used for the dynamic analysis of viscoelastic beams

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Highlights

- An algorithm based on the modified VIM and Laplace transformation techniques is presented.
- Approach of the variable change in fractional integral calculus.
- Stability study of a fractional nonlinear operator defined by VIM.
- Using the properties of convolution product in Banach spaces $L^p(\mathbf{R}^n)$ and the fixed point theory are determined the stability intervals.
- Numerical examples show the influence of fractional derivative and the loading on the structure response.

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