Free Vibration Analysis of Bi-Directional Functionally Graded Single/Multi-Cracked Beams

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Highlights

- Influence of bi-directional material variation on vibration of cracked beams is investigated.
- A general material variation is presented using different functions.
- A novel finite element method in conjunction with different methods is used.
- Stiffness matrix for a BDFG cracked Euler beam is derived.
- Beam is studied with single, double, triple and higher number of cracks.
- A comprehensive parametric study for characteristics of cracks and material variation is proposed.