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Postbuckling of functionally graded graphene-reinforced composite laminated cylindrical panels under axial compression in thermal environments

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### Highlights

- The concept of functionally graded materials is extended to the GRC laminated cylindrical panels.
- A multi-scale approach for postbuckling analysis of FG GRC laminated cylindrical panels is proposed.
- The panel-foundation interaction and temperature-dependent material properties are both taken into account.
- A piece-wise FG reinforcement has a significant effect on the postbuckling behaviors of GRC laminated cylindrical panels.

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