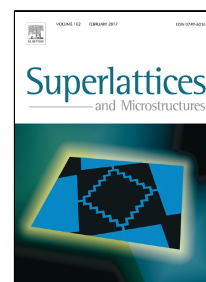


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Designing pinhole vacancies in graphene towards functionalization: Effects on critical buckling load

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- The effect on critical buckling load of a pinhole in a graphene structure is similar in armchair and zigzag directions.
- As the pinhole size increases, the critical buckling load decreases.
- As the pinhole is moved off center towards the loaded edge, the critical buckling load is increasing and when moved towards the supported edge, the critical buckling load decreases.
- New empirical-analytical equations for predicting the buckling behavior of graphene, with engineered pinhole-type atom vacancies are proposed.

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