Influence of internal pressure on the out-of-plane dynamic behavior of circular-celled honeycombs

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Highlights

- A new deformation mode---Coin mode is found under high internal pressure.
- Analytical prediction on honeycomb's load capacity under Coin mode is derived.
- With increase of internal pressure, the honeycomb's deformation mode shifts from Diamond mode to Petal mode and then to Coin mode.
- Honeycombs' plateau stress under Diamond mode is the highest and then decreases with internal pressure under Petal mode. Once Coin mode appears, the honeycomb's plateau stress hardly depends on the internal pressure.