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Topological Phase Transition in Mechanical Honeycomb Lattice

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Highlights:

- Valley Hall, Chern and spin Hall phase transition for in-plane elastic wave are explored in a unified mass-spring honeycomb lattice;
- The topological phase transitions are revealed through evaluation of topological invariants obtained from the $k \cdot p$ effective model;
- Topologically protected interface states, decaying rate and polarization are theoretically analyzed, and are further confirmed by numerical results.

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