Wave stability on one-dimensional non-linear lattices CHIA-CHEN
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report the results of our stability analysis of exact travling wave solutions for two
non-linear mono-atomic lattices in one dimension. One lattice has nearest-neighbor
potential energy containg quadratic and quartic terms (Fermi-Pasta-Ulam model).
The other lattice has potential energy which goes as $cosh(q)$, a generalization of
the Toda lattice. These exact traveling wave solutions have wave lengths that are
commensurate with the lattice constant. It is found that on the quadratic-quartic
lattice, the traveling wave solutions are unstable. For the $cosh(q)$ lattice, on the
other hand, the solutions are stable.

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