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Traveling waves for the FPU chain

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Traveling waves for the FPU chain are constructed by solving the associated equation for the spatial profile u of the wave. We consider solutions whose derivatives u' need not be small, may change sign several times, but decrease at least exponentially. Our method of proof is computer-assisted. Unlike other methods, it does not require that the FPU potential has an attractive (positive) quadratic term. But we currently need to restrict the size of that term. In particular, our solutions in the attractive case are all supersonic.

Joint work with Gianni Arioli.

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