The Fermi-Pasta-Ulam Model: Periodic Solutions

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Abstract. We introduce two novel methods for studying periodic solutions of the FPU β-model, both numerically and rigorously. One is a variational approach, based on the dual formulation of the problem, and the other involves computer-assisted proofs. These methods are used e.g. to construct a new type of solutions, whose energy is spread among several modes, associated with closely spaced resonances.