

* Electronic Address: k.matthies@bath.ac.uk

¹ University of Bath

† Electronic Address: michael.herrmann@uni-muenster.de

² University of Münster

Asymptotics and stability of solitary waves in the high-energy limit of FPU-type chains

Karsten Matthies^{1*}, Michael Herrmann^{2†}

The high-energy limit of travelling waves in Fermi-Pasta-Ulam type chains is governed by the hard-sphere model provided that the atomic interaction potential grows sufficiently fast. In this talk we briefly review the existing convergence results for solitary waves and present a refined asymptotic analysis which provides almost explicit expressions up to high accuracy. This enables us to study the linearisation around such waves. We discuss the implications concerning the uniqueness and the stability of travelling waves.