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Timothy E Faver* (tef36@drexel.edu), Timothy Faver, Department of Mathematics, Korman Center, Drexel University, Philadelphia, PA 19104, and **J. Douglas Wright**. *Periodic traveling waves in diatomic Fermi-Pasta-Ulam-Tsingou lattices.*

We construct periodic traveling waves for diatomic Fermi-Pasta-Ulam-Tsingou (FPUT) lattices consisting of two distinct masses and only one kind of spring. After diagonalizing certain operators in the traveling wave equations and exploiting symmetries in the problem, the resulting system becomes highly amenable to the technique of bifurcation from a simple eigenvalue due to Crandall, Rabinowitz, and Zeidler. However, subsequent analysis of the traveling wave problem requires rather precise estimates on the solutions that are uniform in wave speeds arbitrarily close to the speed of sound, and the bifurcation approach does not explicitly provide these estimates. Instead, inspired by the proofs of classical bifurcation, we convert our system to a fixed point problem and obtain both the solutions and the uniform estimates via a quantitative contraction mapping argument. This is joint work with J. Douglas Wright. (Received June 30, 2016)