**Simulation Report on the Fermi-Pasta-Ulam-Tsingou Experiment**

Chart

Description automatically generated with medium confidence

Fourier Coefficients of vibrational modes over time

Chart, line chart

Description automatically generated

Snapshot of oscillator lattice undergoing non-linear acceleration

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| **Name** | **Contribution (%)** | **Notes** |
| Adaeze Julia | 25% | Fantastic team player, never failed to show up to meetings with a smile. |
| Conrad Thomson | 30% | Set up team meetings, created the entire program, wrote the entire report and tutored the rest of the team on the code. |
| Harry Gujadhur | 25% | Highly motivated and organised as evidenced by him being the first to contact our group at week 1. |
| Angus Reid | 20% | Went to a couple of meetings. |

Abstract

Since 1953, it has been known that a vibrating string will not decay into uniform vibrational modal amplitudes when subjected to non-linear acceleration. Seminal research on non-linear vibration by the Fermi-Pasta-Ulam-Tsingou experiment’s eponymous designers found that instead of [thermalising](https://en.wikipedia.org/wiki/Thermalisation) as expected, a string (represented by a one-dimensional lattice comprising N evenly spaced oscillators) will over time revert to a state almost reflecting its initial conditions after going through a period of apparent chaos. In this study we will utilise modern numerical computing techniques to analyse FPUT recurrence and attempt to determine its cause.