Below are the plots of the Single Mode Response:

A diagram of a graph

Description automatically generated

A diagram of a single mode response simulation

Description automatically generated

The initial conditions were determined by normalizing each of the eigenvectors, and using the ratios that we obtained from the second element of each eigenvector.

**E-Values:**

[-0.00201+21.144j -0.00201-21.144j -0.00029 +8.07639j -0.00029 -8.07639j]

**Real Components of the Eigenvectors:**

[ 3.82059031e-06 -8.48171050e-01 -6.18184498e-06 5.24198537e-01]

[ 3.82059031e-06 -8.48171050e-01 -6.18184498e-06 5.24198537e-01]

[-2.36125467e-06 5.24198537e-01 -1.45933564e-06 8.48171050e-01]

[-2.36125467e-06 5.24198537e-01 -1.45933564e-06 8.48171050e-01]



Experimental Data Plots:

A graph with blue and orange lines

Description automatically generated

A graph of a single mode response simulation

Description automatically generated

Comparison of Predicted Frequencies with ICs and Ratios:

|  |  |  |  |
| --- | --- | --- | --- |
| Mode | Predicted Frequency (Hz) | Initial Condition | Ratio of Peaks |
| 1 | 1.285 | 1, 1.618 | 0.064/0.031 = 2.065 |
| 2 | 3.365 | 1, -0.618 | 0.092/.023 = 4 |