Analysis of Coupled Oscillators through Fourier Methods

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October 9, 2025

Abstract

test

1 Introduction

When a system exhibiting oscillatory motion (an oscillator) is subjected to a periodic, external force, it is known as a *driven oscillator*. Driven oscillators exhibit a behavior known as *resonance* when the frequency of the external force matches the oscillatory frequency of the system, at which point the amplitude of oscillation may increase dramatically, depending on how damped the system is.

A *coupled oscillator* is a system with multiple oscillatory elements that influence each other in some way. This could be something like two pendulums connected by a spring, or the atoms of a metal connected by electromagnetism. For such a system, an arbitrary displacement from equilibrium usually results in complicated motion where the frequency at which each element oscillates itself continuously oscillates

When a coupled oscillator is driven, there

The object of study in this report is a magnetically coupled, magnetically driven, torsional oscillator

2 Procedure

3 Results

3.1 Raw data

3.2 Processed data

4 Conclusion