Frequency Responses from PNLSS identified Models

TRC 2019 - Project 2 WP 2

July 8, 2019

Overview

▶ The FRF generated from the truth model using HBM is compared with the FRF generated from the model identified by PNLSS

▶ PNLSS identification is carried out using response data from different levels of multisine excitation

▶ Benchmark 1 (Duffing oscillator) and Benchmark 4 (Cantilever with elastic dry friction) are considered here.

Benchmark 1 - Duffing Oscillator I
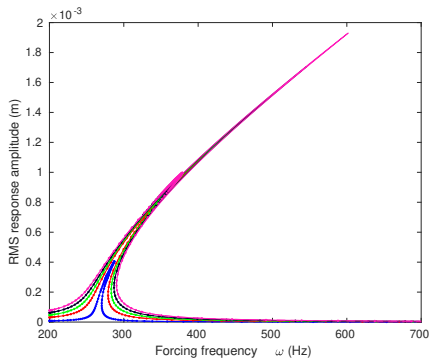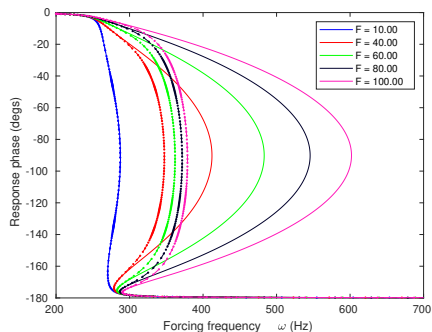## Multisine (RMS) Excitation Level : 10 N
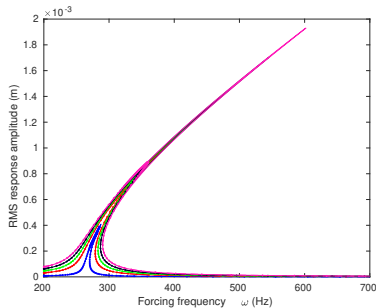
(a) Amplitude
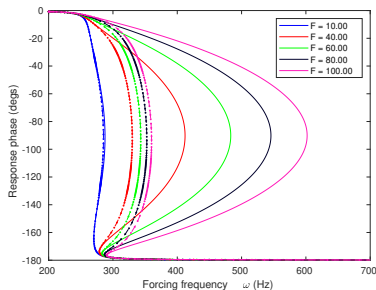
(b) Phase

- ▶ The lowest forcing level (F=10) seems to show good matching
- ▶ For higher levels the matching fails near the peak

Benchmark 1 - Duffing Oscillator II

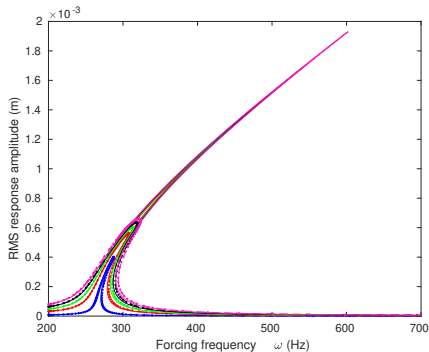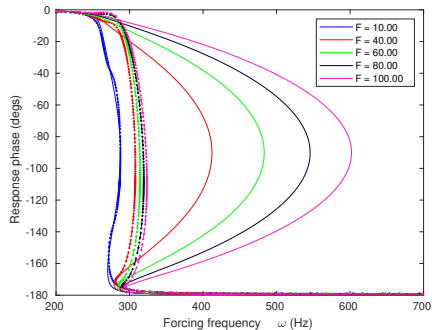## Multisine (RMS) Excitation Level : 25 N

(a) Amplitude

(b) Phase

- ► The lowest forcing level (F=10) seems to show good matching once again
- ► Higher levels match progressively better in the off-peak regions than before

Benchmark 1 - Duffing Oscillator III

Multisine (RMS) Excitation Level : 35 N

(a) Amplitude

(b) Phase

▶ The match seems to be worse nearly throughout the response curve