

An Investigation into Gimbal Pose Accuracy: The Accuracy of the Gimbal Model in the Frequency Domain

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Background

- Project Focus in STERG
 - Automated Drones In CSP
 - Calibrations, Inspections and Measurements
- Gimbals



Background

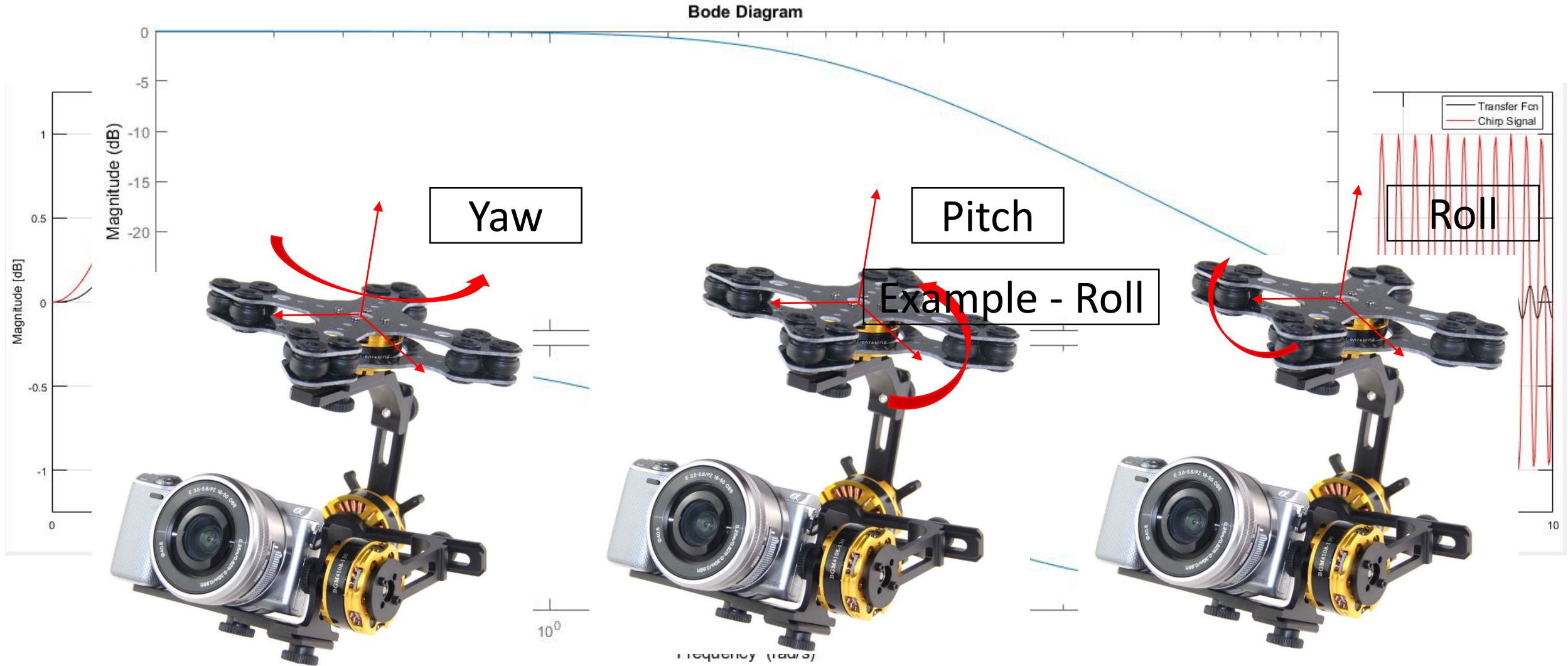
- Gimbals



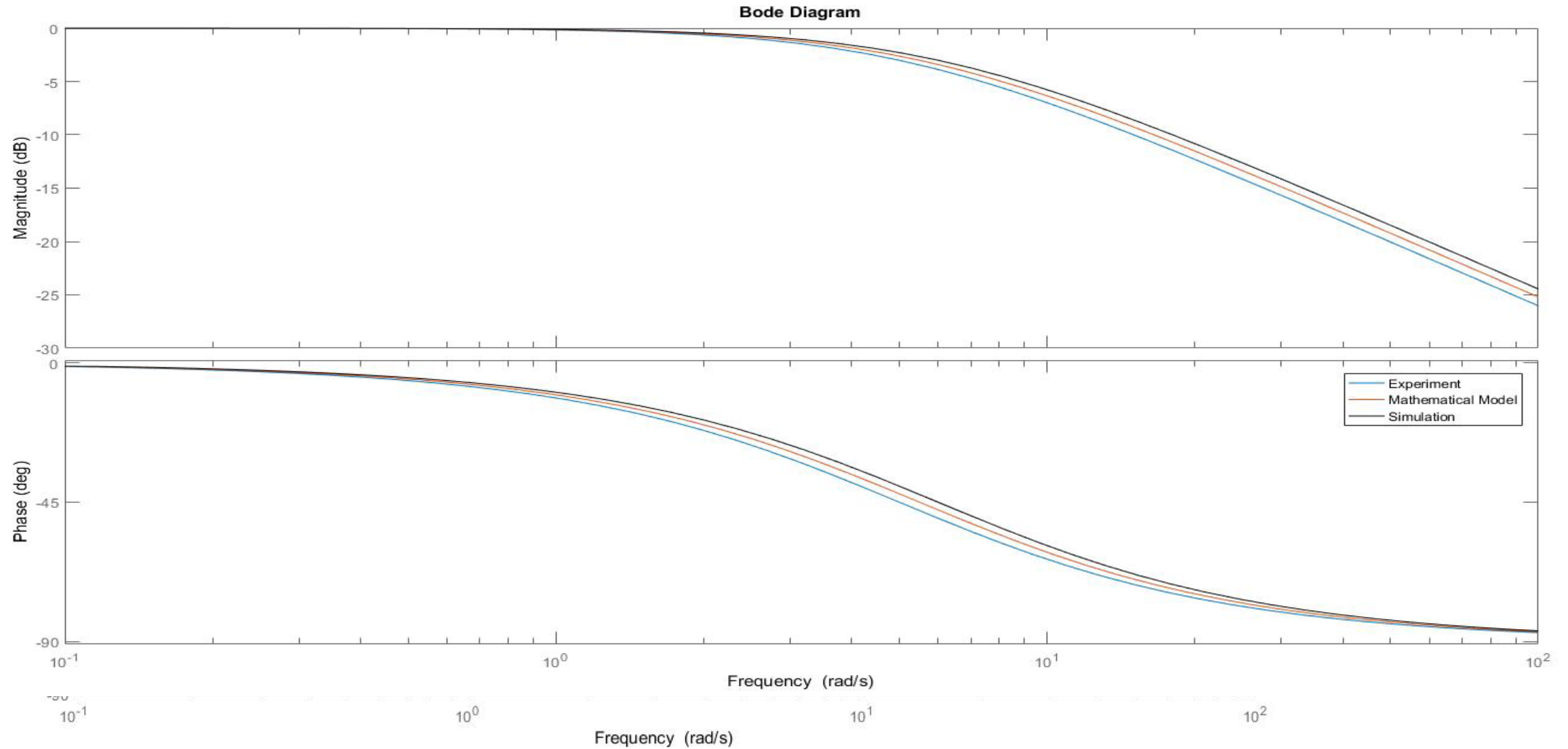
Problem Statement

- Gimbals not designed for high precision measurements
 - Relatively low frequency disturbances
 - Little, or no, high frequency response data available
 - Trade secret, military research, or not done
1. *How sensitive is the gimbal to frame disturbances? (Moving Frame)*
 2. *How accurately can a gimbal measure its centre axis rotations? (Stationary Frame)*
 3. *What are the effects of high frequency gimbal frame disturbances?*

Objectives

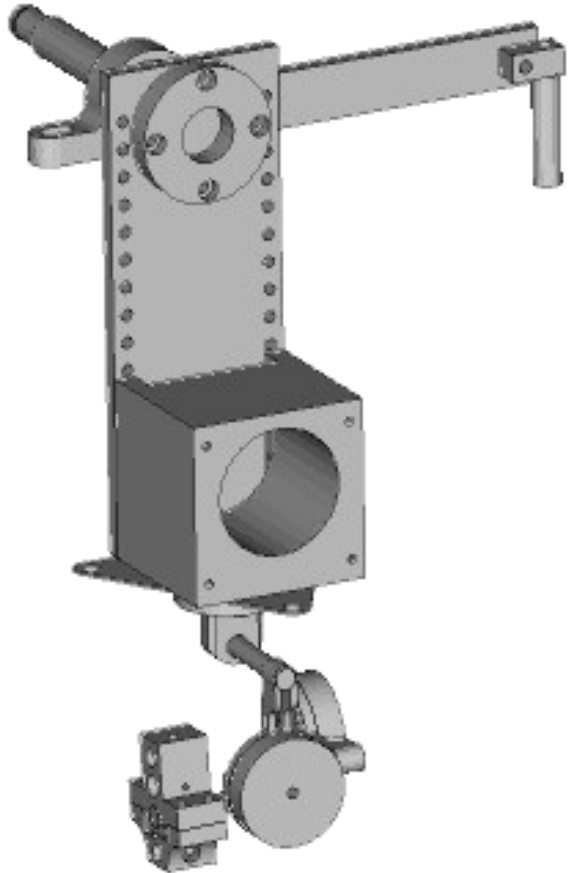


Objectives

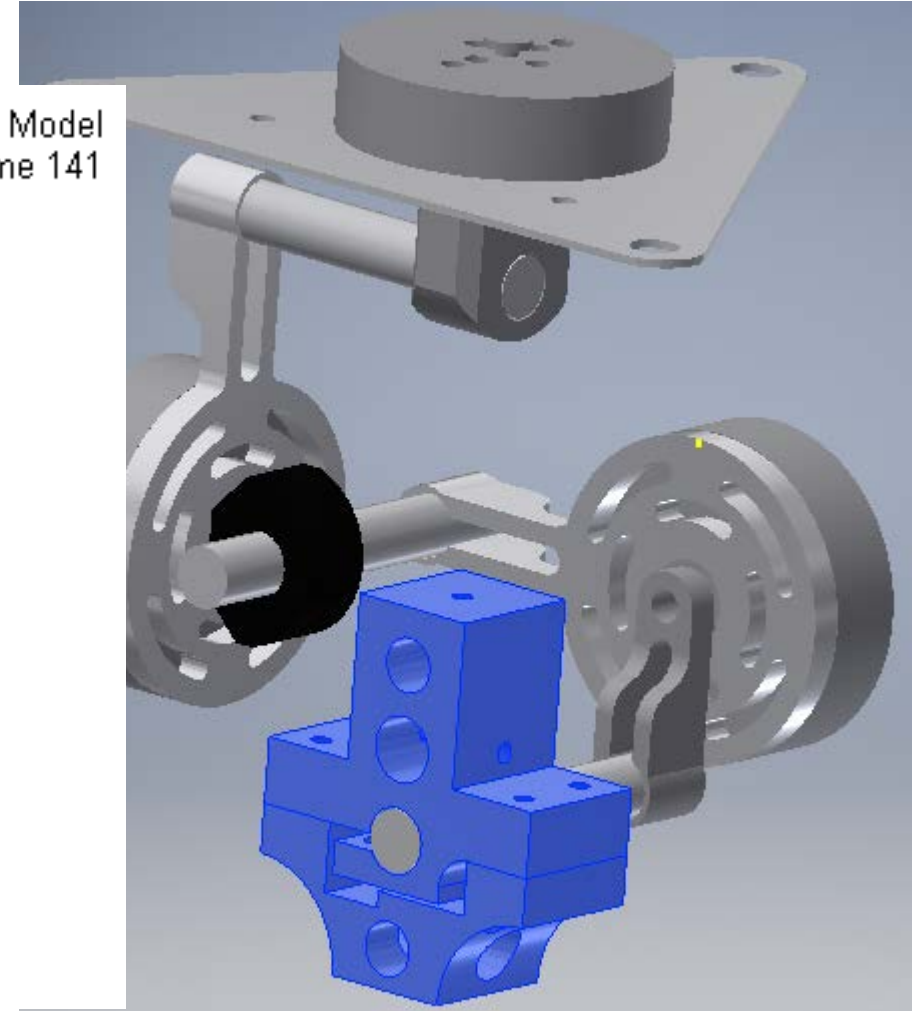


Solution Plan

- How will the gimbal be tested?
 - Varied Angular Displacement and Frequency of Frame
 - Static Frame and Aiming Laser

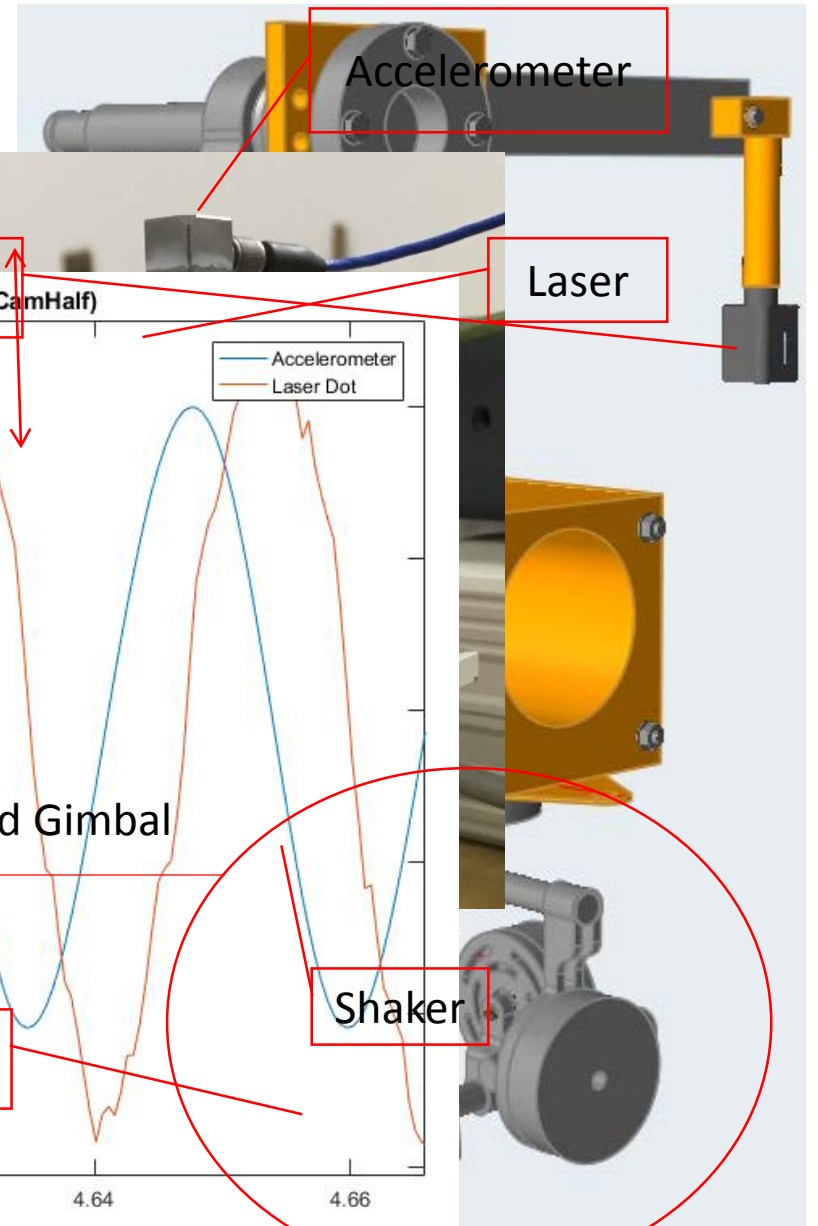


1: MS Model
Transient : Time = 0.280000 : Frame 141

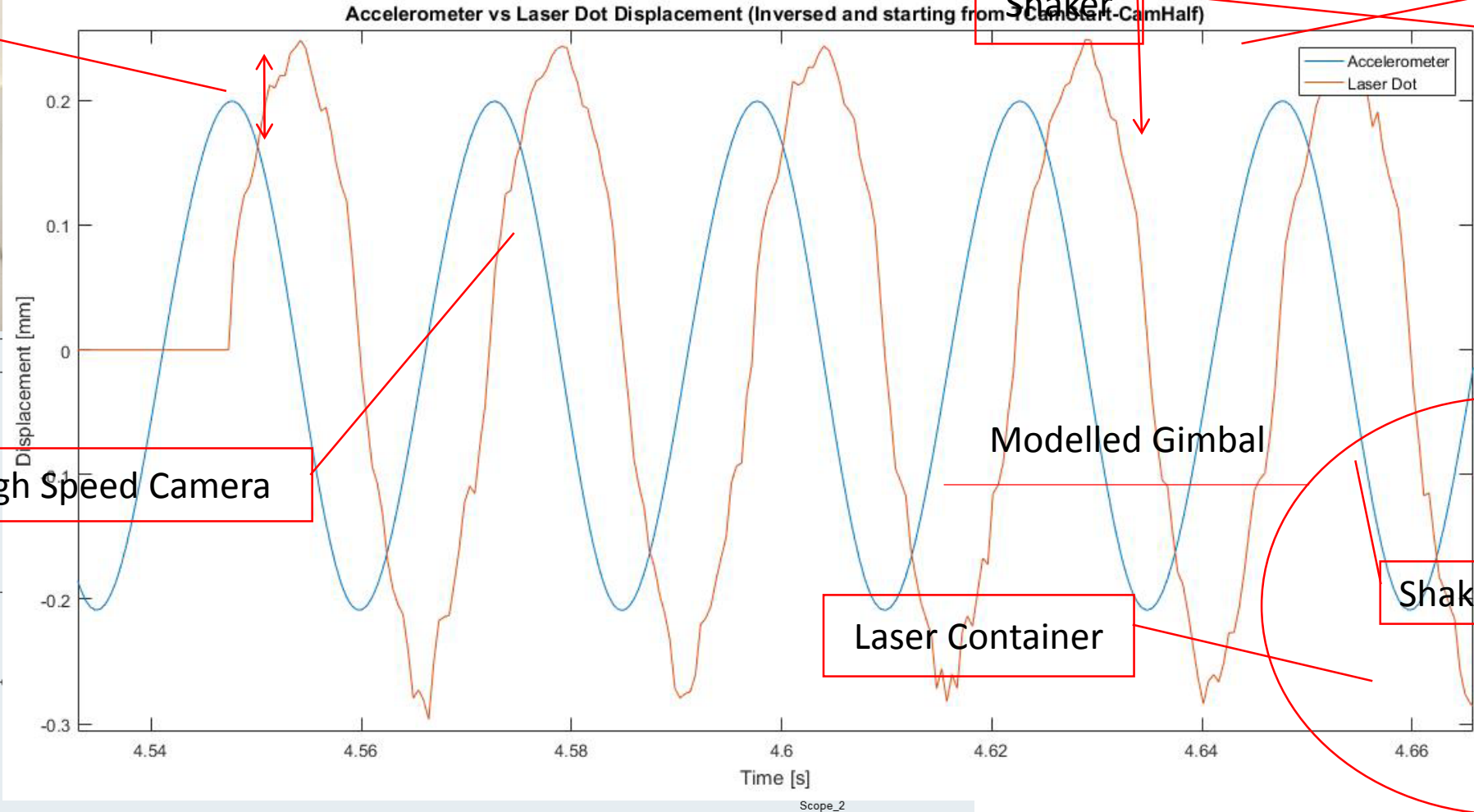


Progress and Remaining Tasks

- Measurement System



Laser Dot



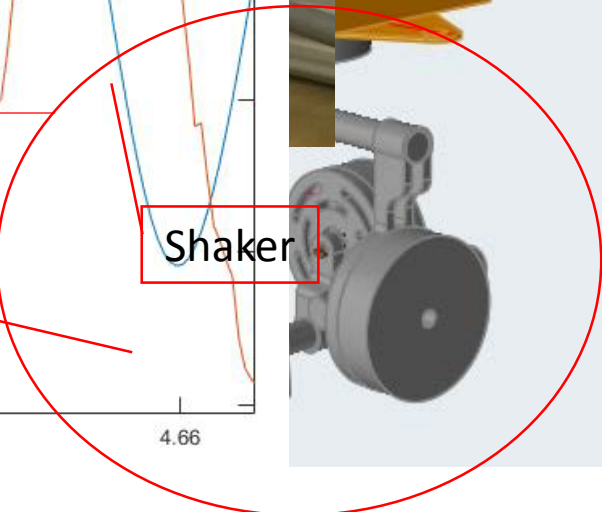
Shaker

Laser

High Speed Camera

Modelled Gimbal

Laser Container



Shaker

Thank you

- Acknowledgments:

Dr. Willie Smit

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Hannes Swart

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