

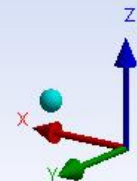
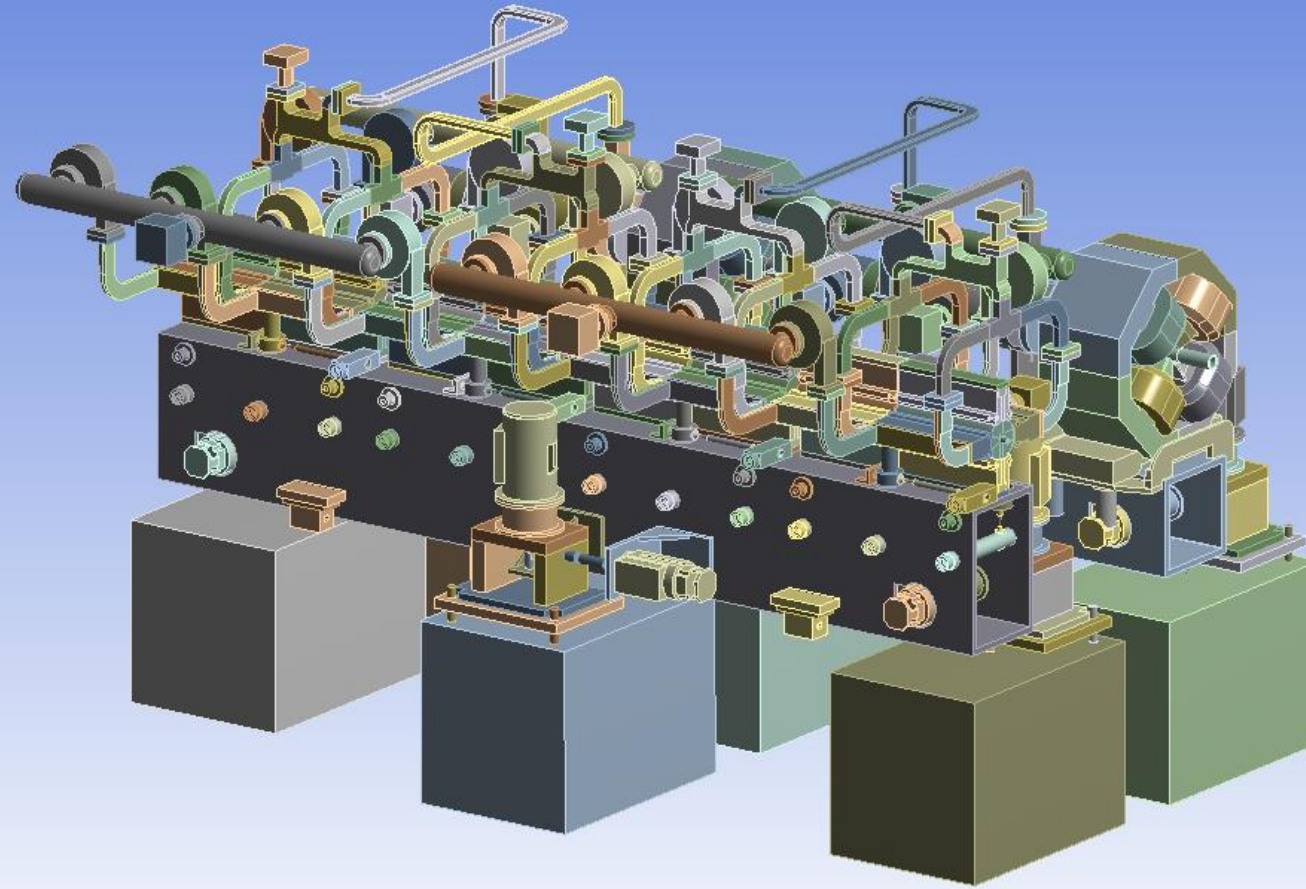
Full TBM System Modes

19/11/2019

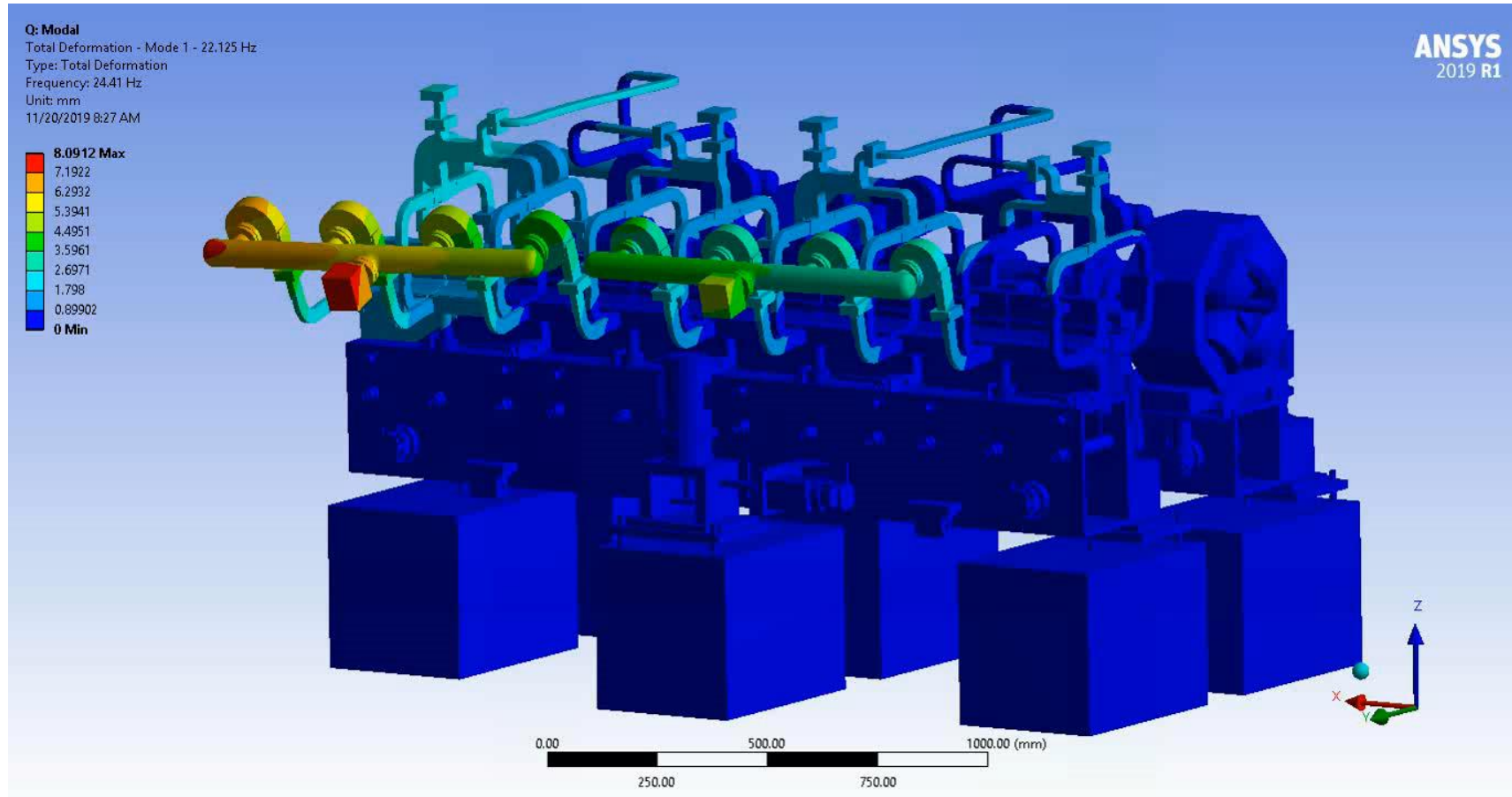
Model

Geometry
11/6/2019 8:02 AM

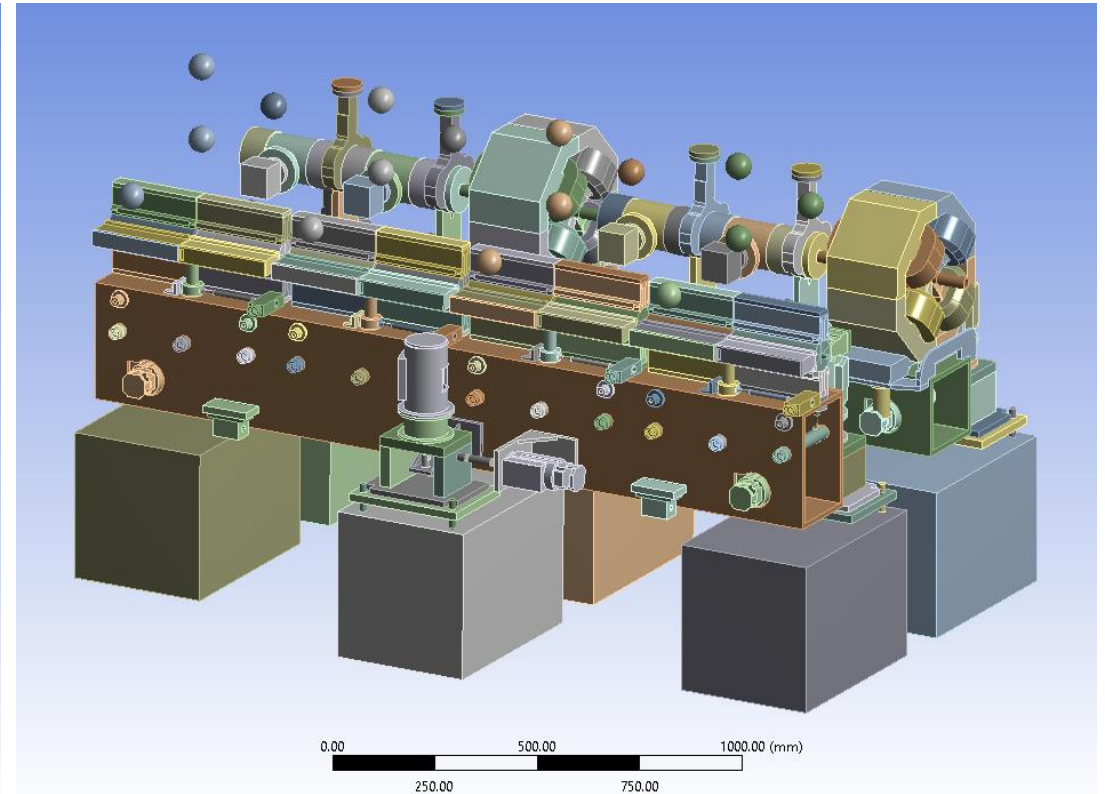
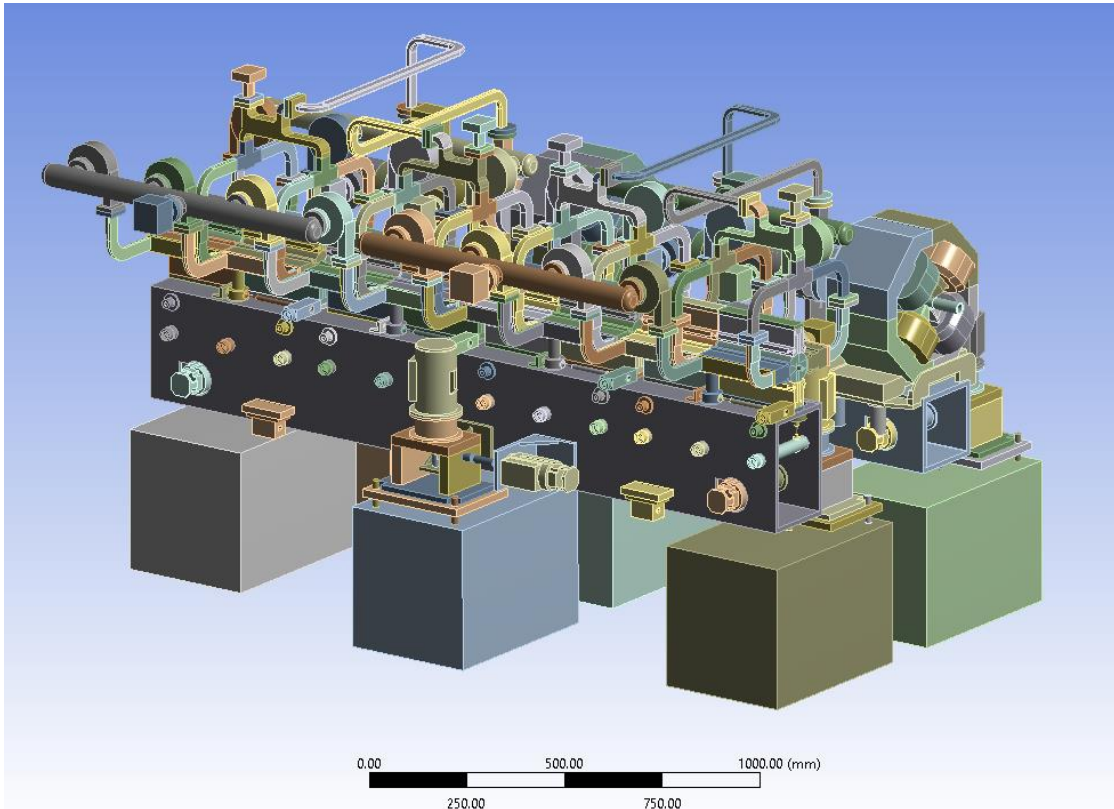
ANSYS
2019 R1
ACADEMIC



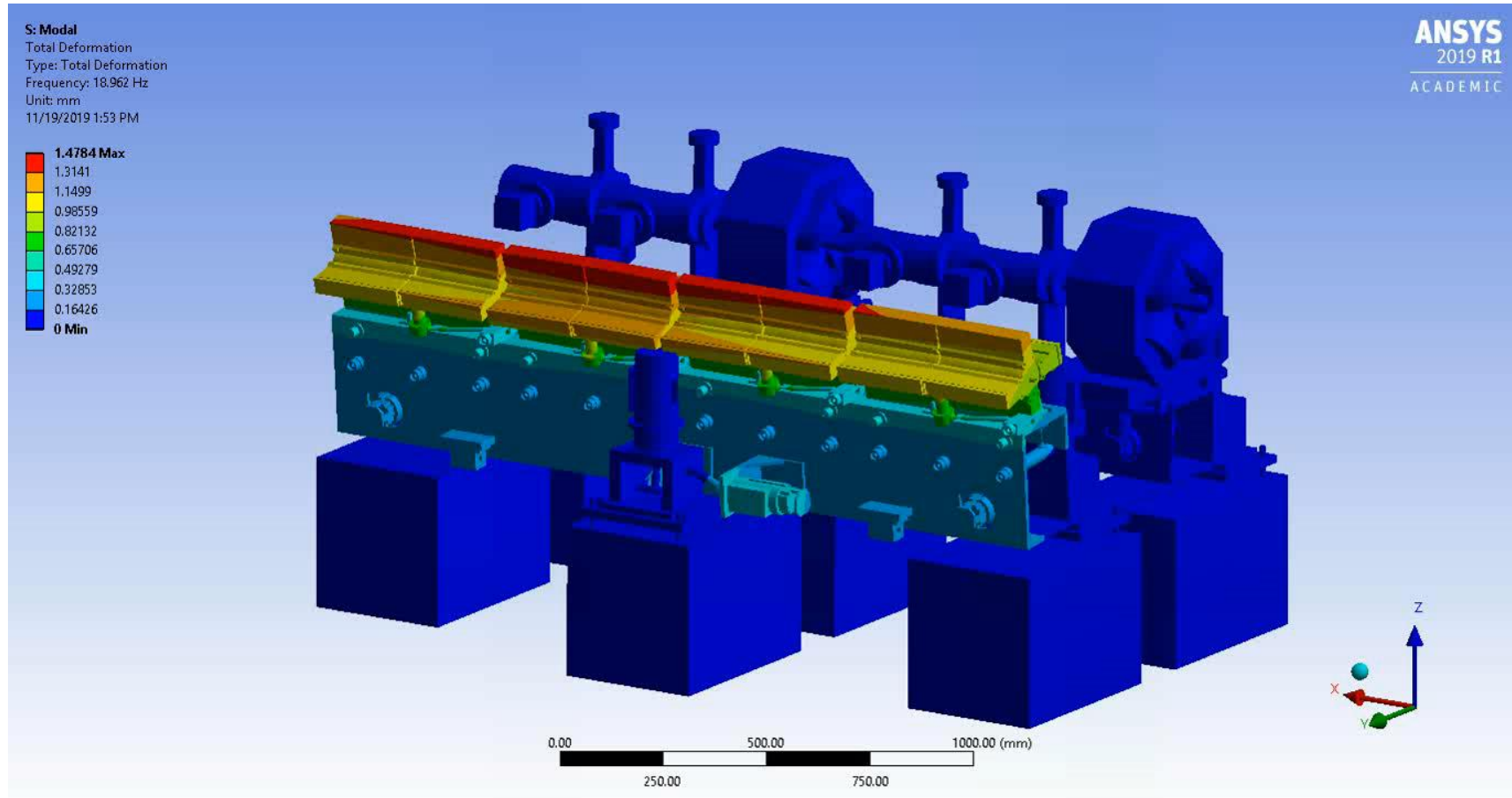
Fundamental Mode 24.41Hz



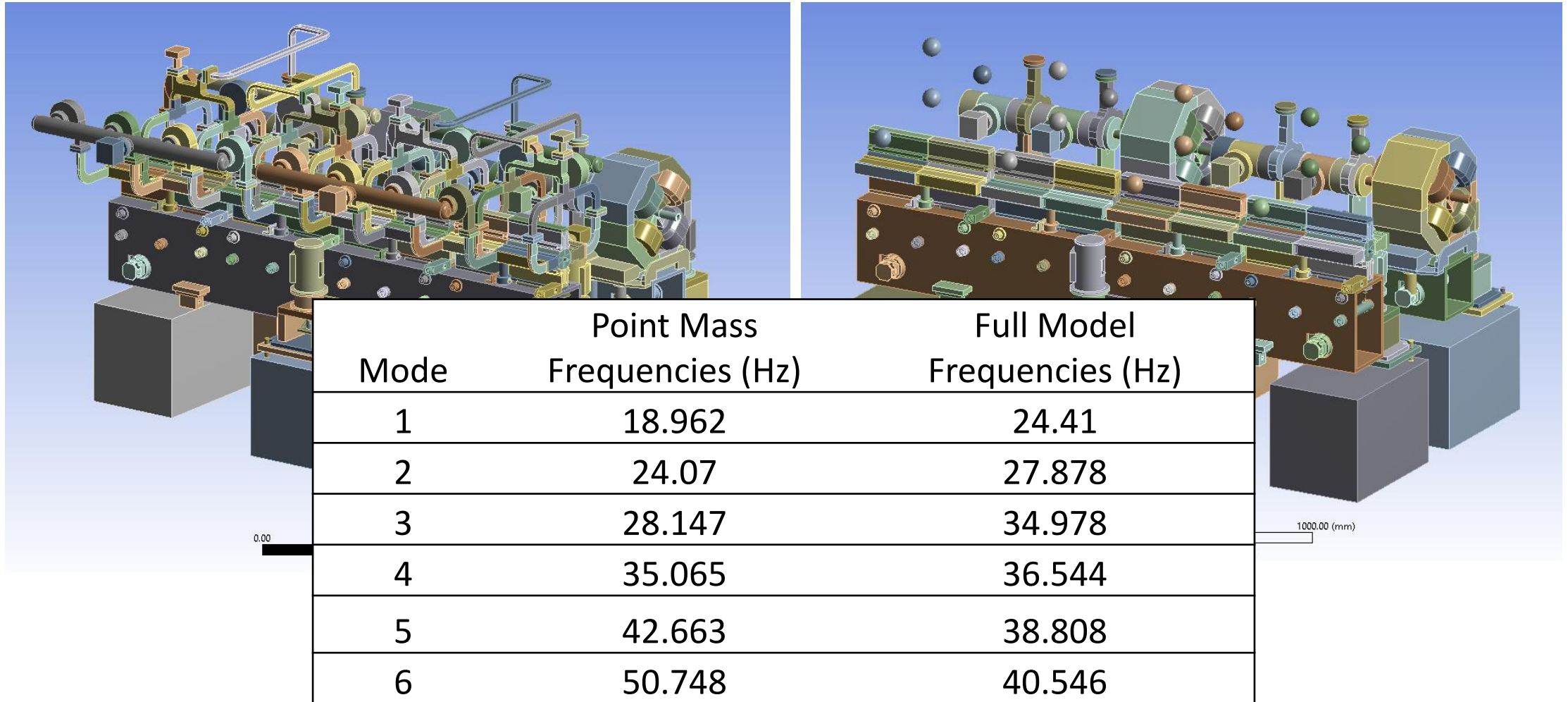
Simplification of Waveguide Network



Fundamental Mode 18.962Hz



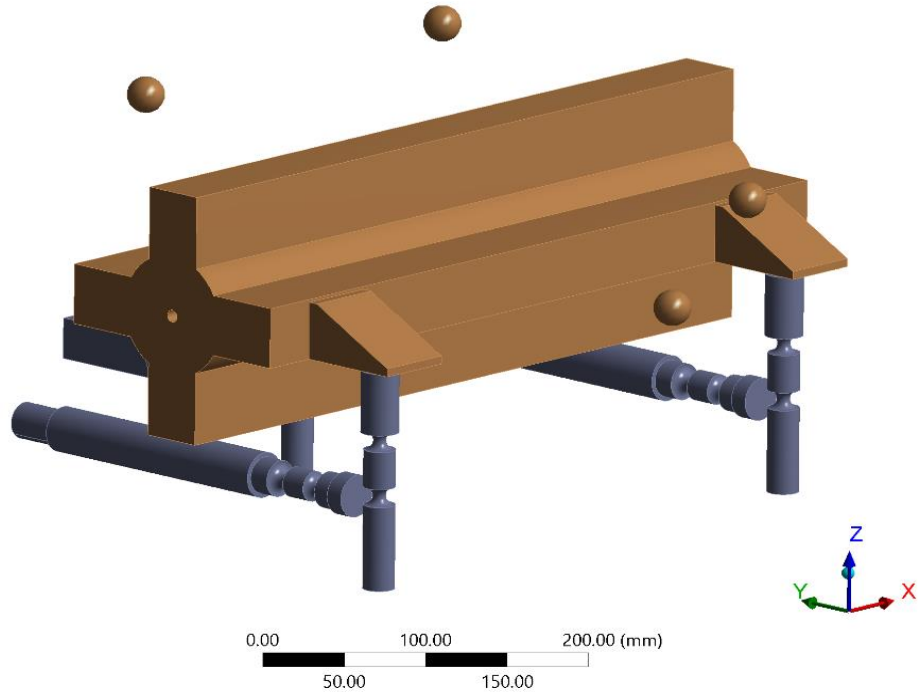
Comparison of Waveguide Network



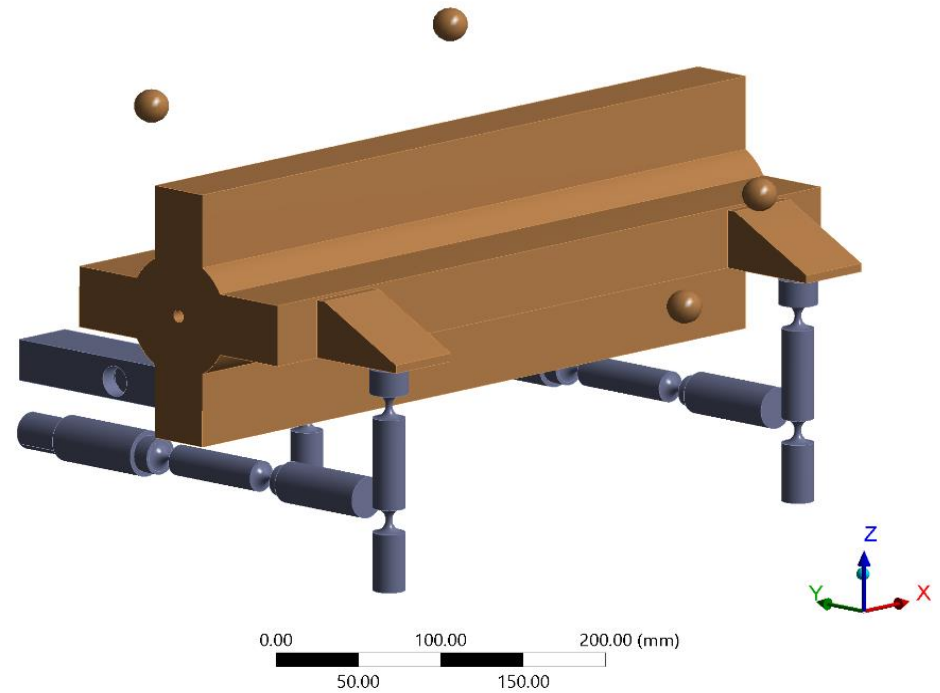
Adjustment Range vs Fundamental Frequency

06/11/2019

Reducing Adjustment Range

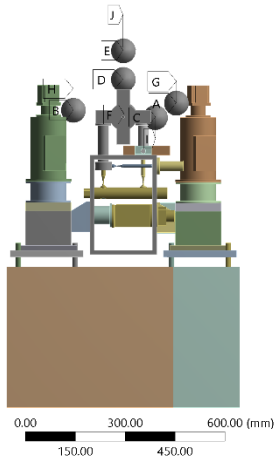


Greater SAS Flexure Stiffness
Smaller adjustment range



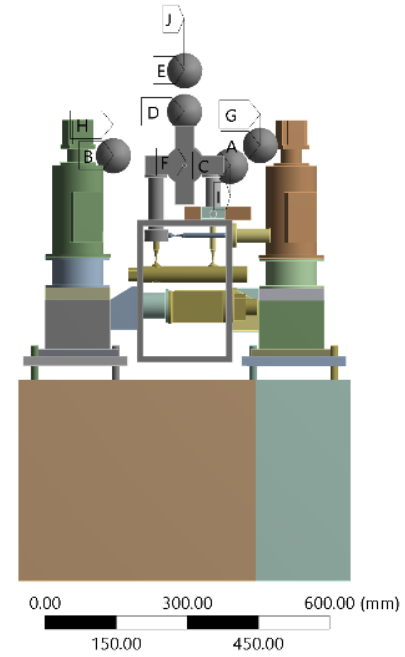
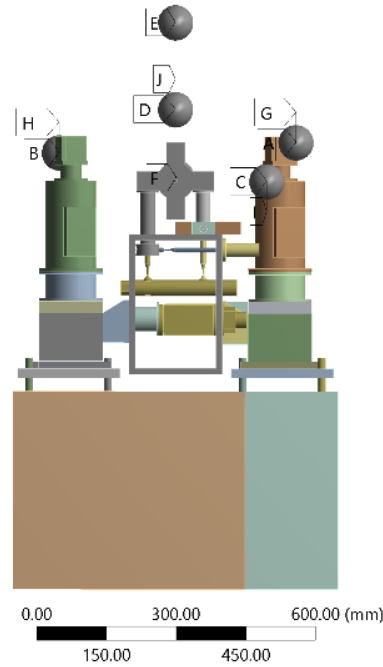
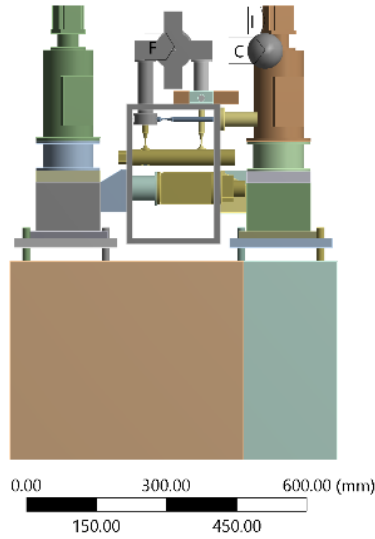
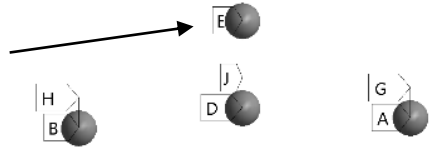
Lower SAS Flexure Stiffness
Larger adjustment range

Increasing Height of Waveguide COM

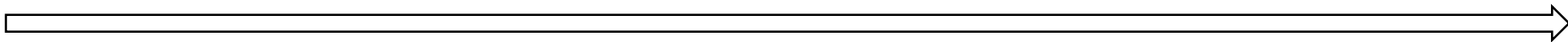


the

waveguide
network, RF
Loads, and
Vacuum Pumps

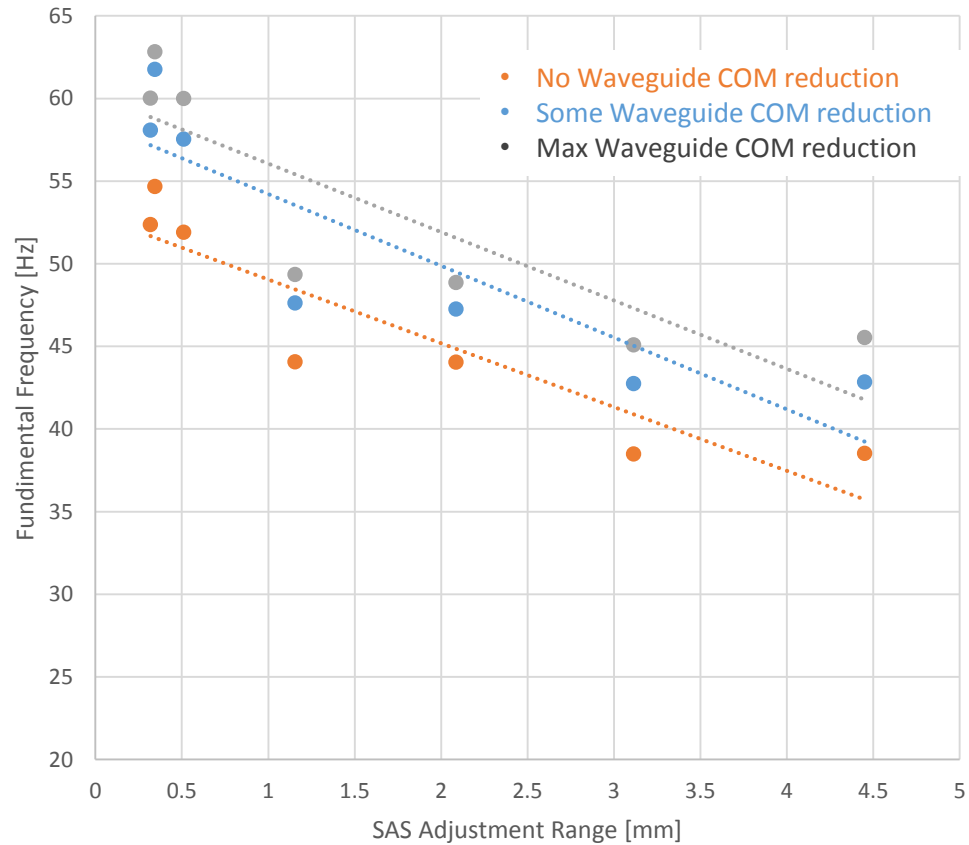


Lowering COM

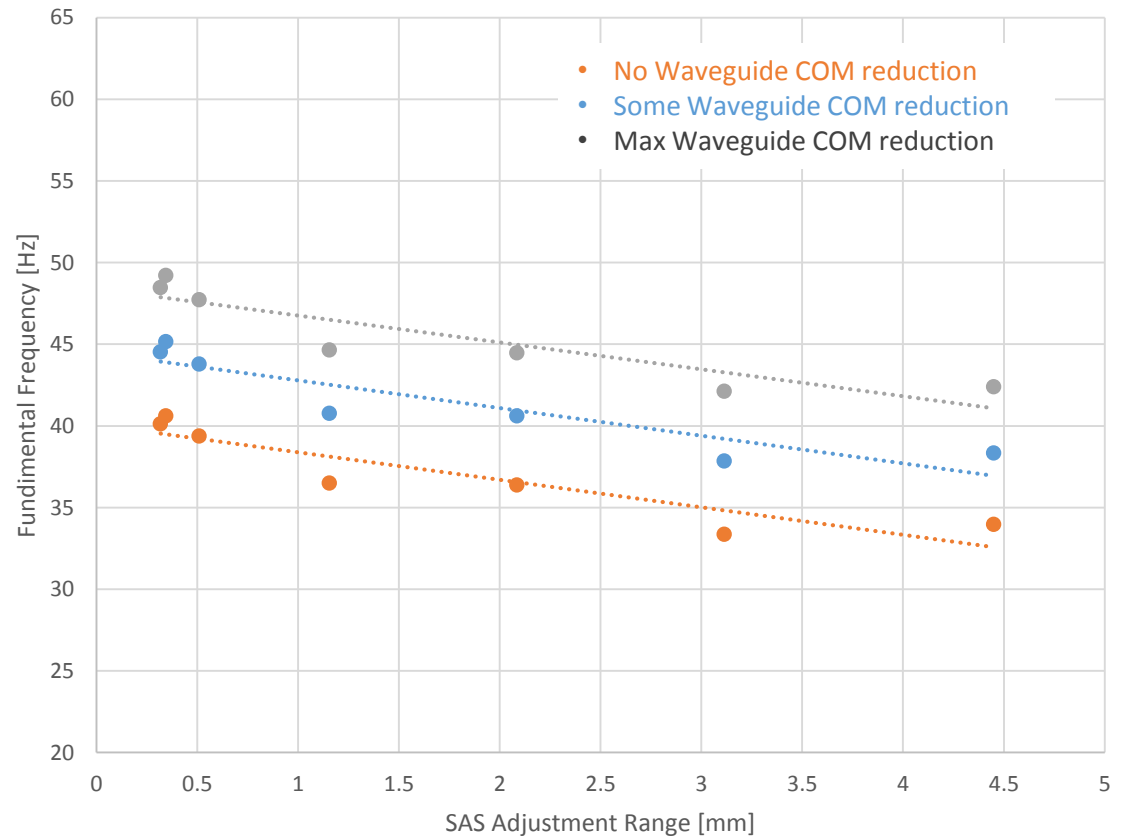


Adjustment Range vs Fundamental Frequency

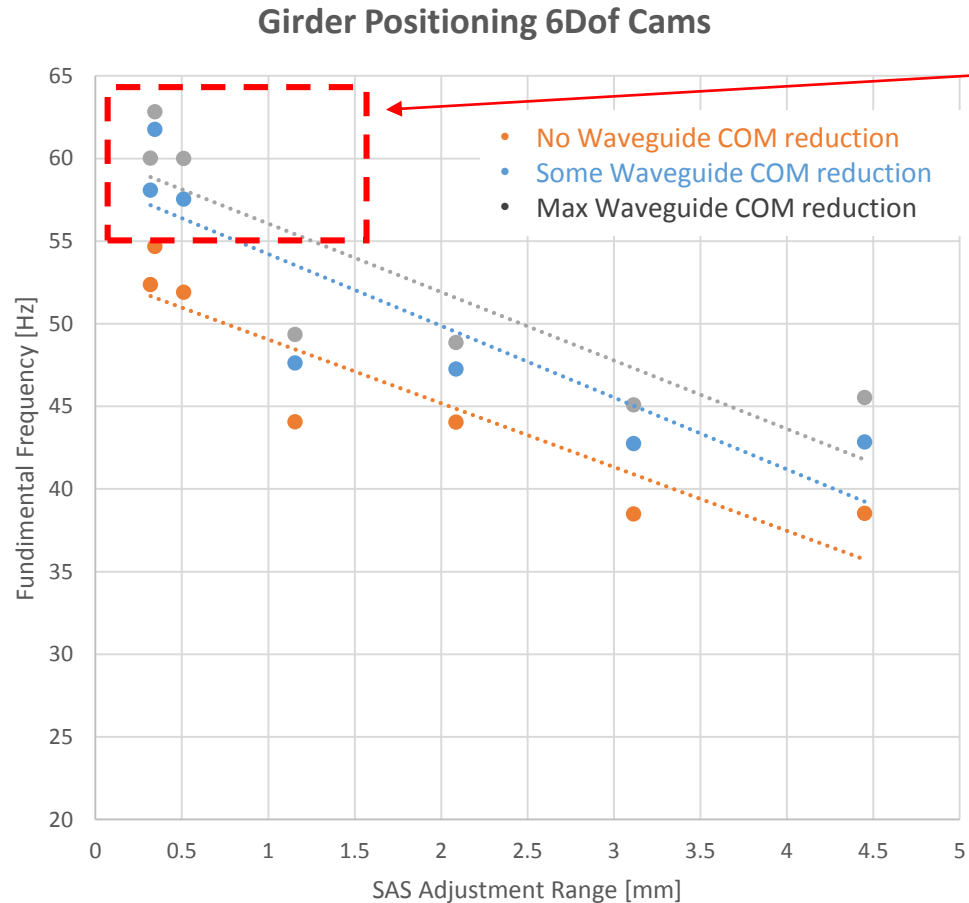
Girder Positioning 6Dof Cams



Girder Positioning Flexures



Adjustment Range vs Fundamental Frequency



Possible design region where the fundamental frequency is >50Hz. Requires:

- 6DOF Cam Mover System
- Reducing the adjustment range of the SAS Flexure System from 3mm to <1mm
- Optimising the waveguide network