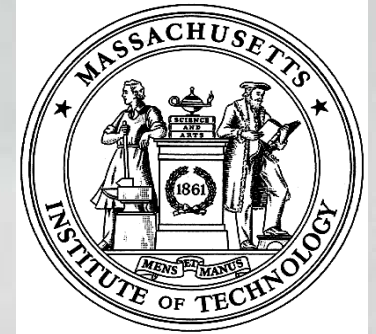
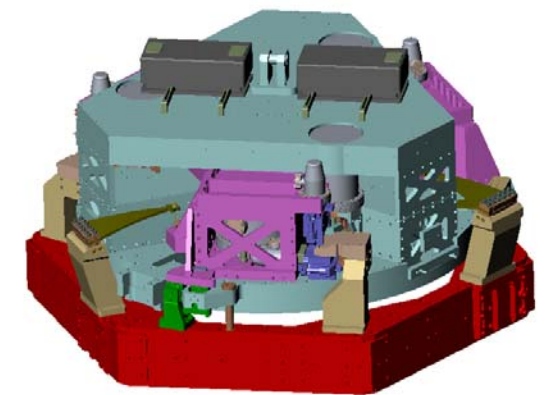


# Lasti BSC-ISI Update



March 2008

On behalf of the SET  
Team



# The SEI Team

MIT

*Stephany Foley*  
*Bob Lalierte*  
*Myron Macinnis*  
*Fabrice Matichard*  
*Andy Stein*  
*Predeep Sarin*  
*Ken Mason*  
*Rich Mittleman*

Caltech

*Ben Abbott*  
*Dennis Coyne*  
*Lee Cardenas*  
*Jay Heefner*  
*Riccardo DeSalvo*

Stanford

*Daniel Clark*  
*Tarmigan Casebolt*  
*Dan DeBra*  
*Brian Lantz*

*And I'm sure  
that I've missed  
a few*

*MIKE  
ZUCKER*

LLO/LSU

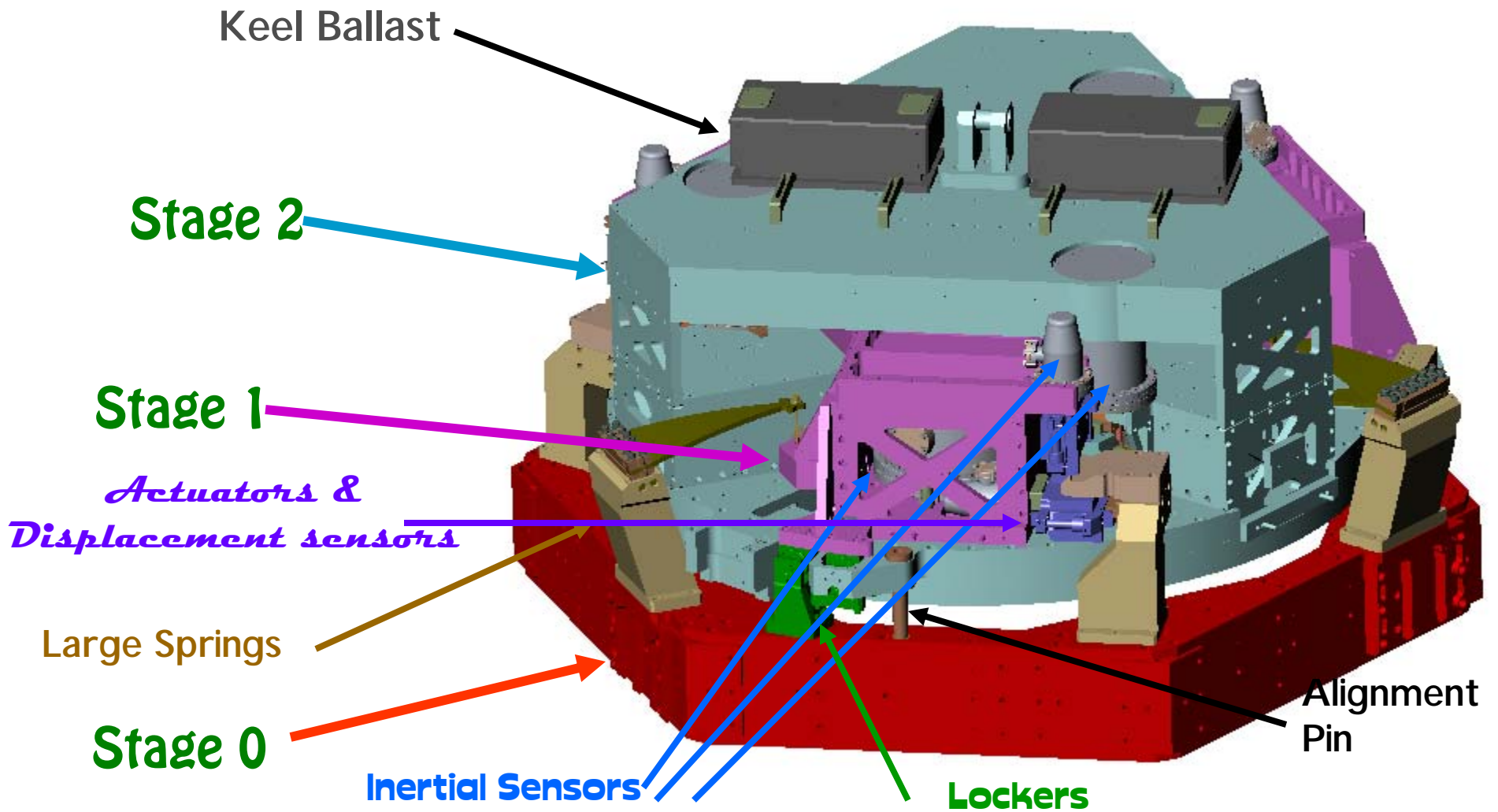
*Joe Giaime*  
*Joe Hanson*  
*Brian O'Reilly*  
*Jeff Kissel*  
*Shyang Wen*

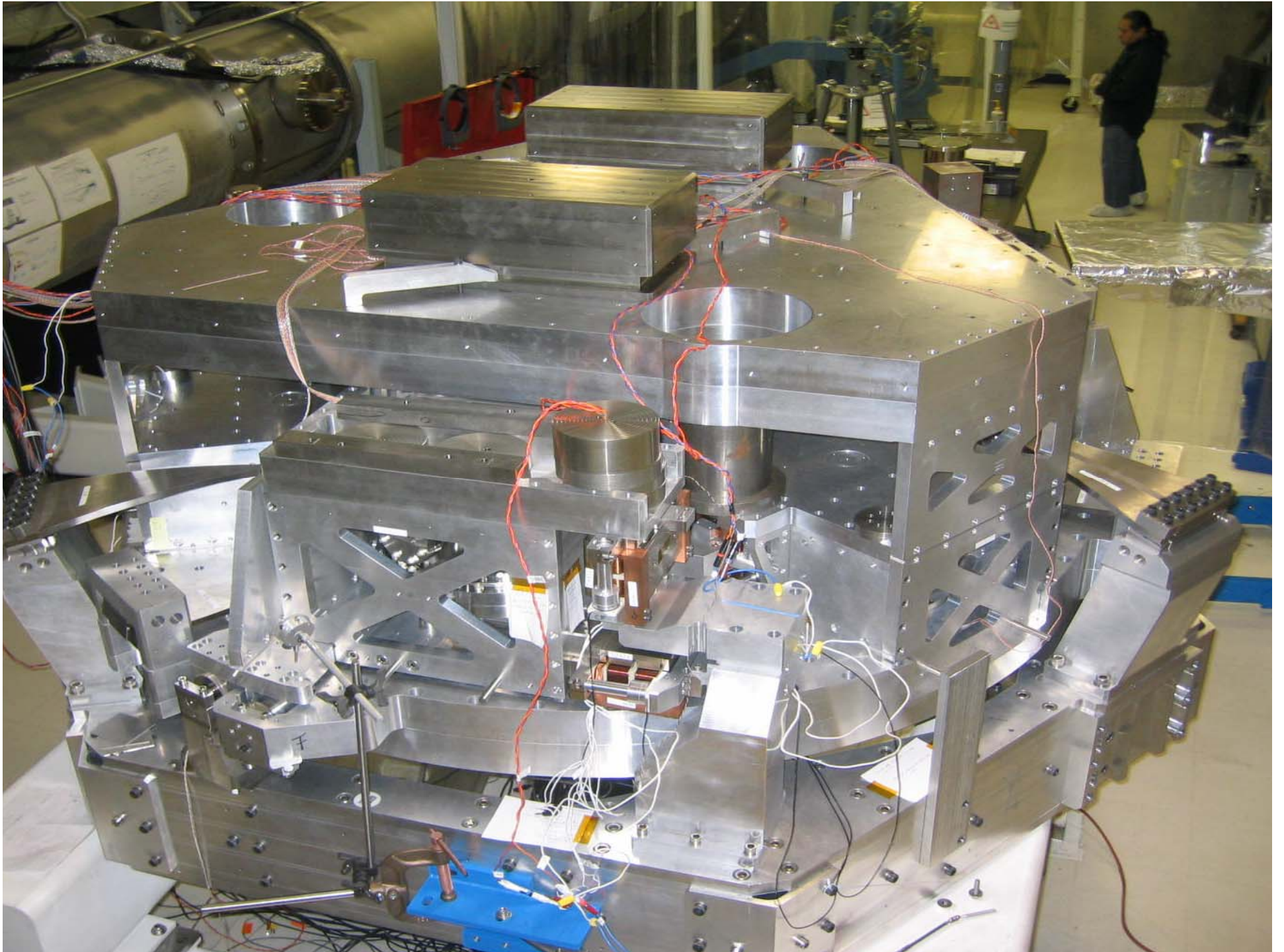
LHO

*Corey Gray*  
*Hugh Radkins*  
*Mike Landry*

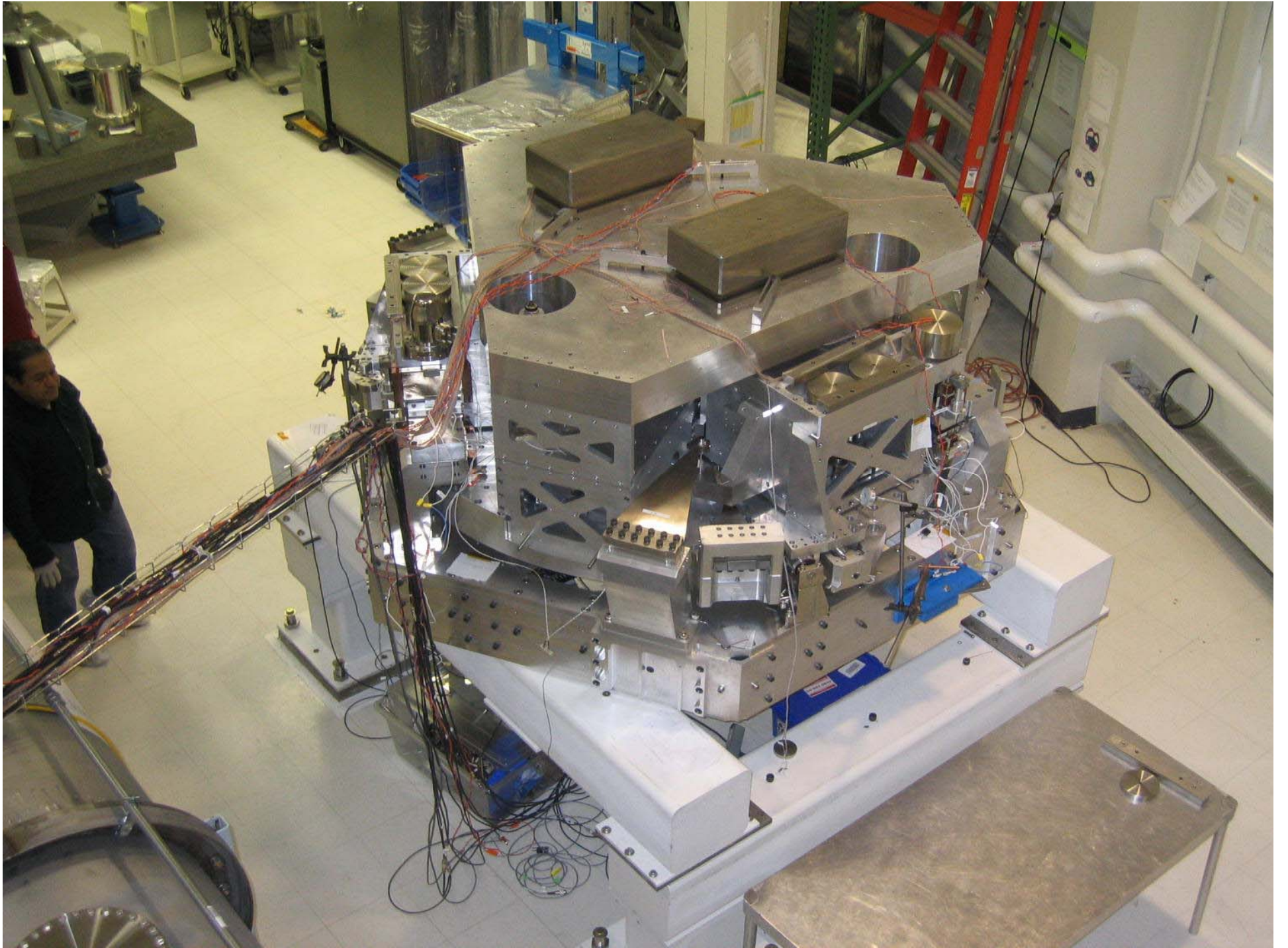


# Three Stage ISI

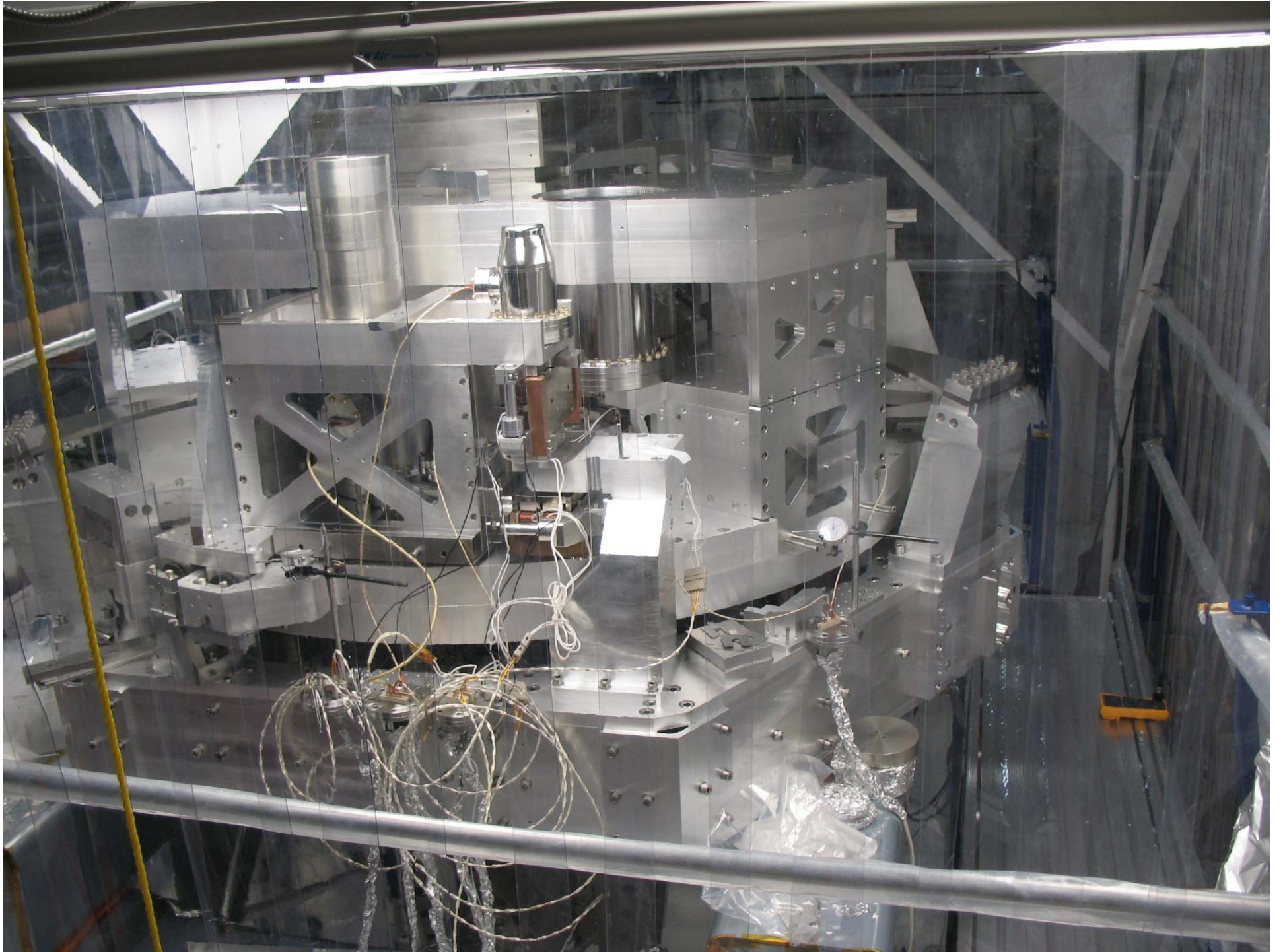




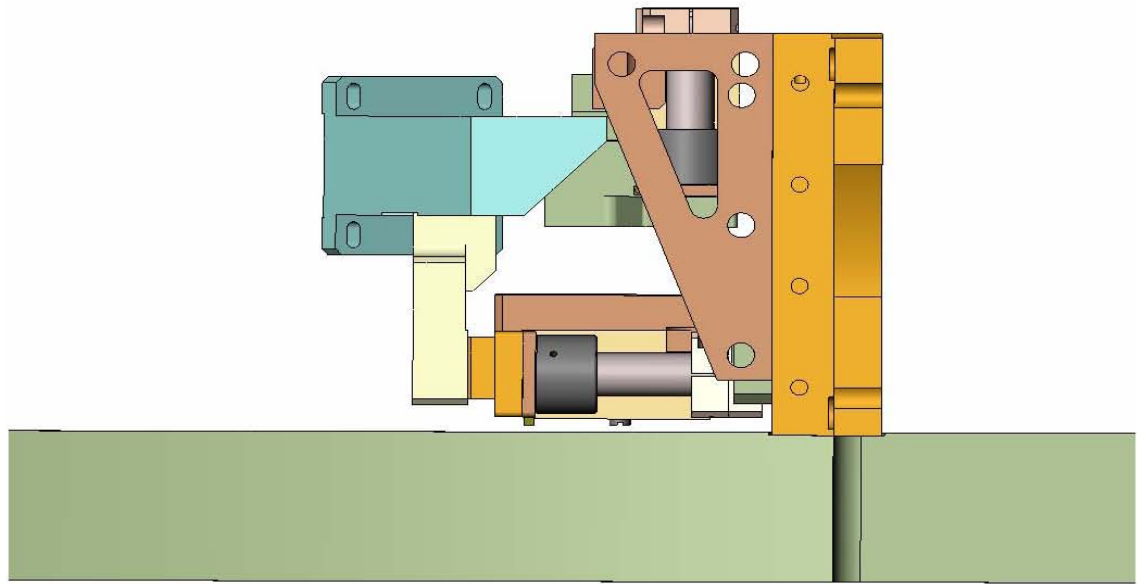




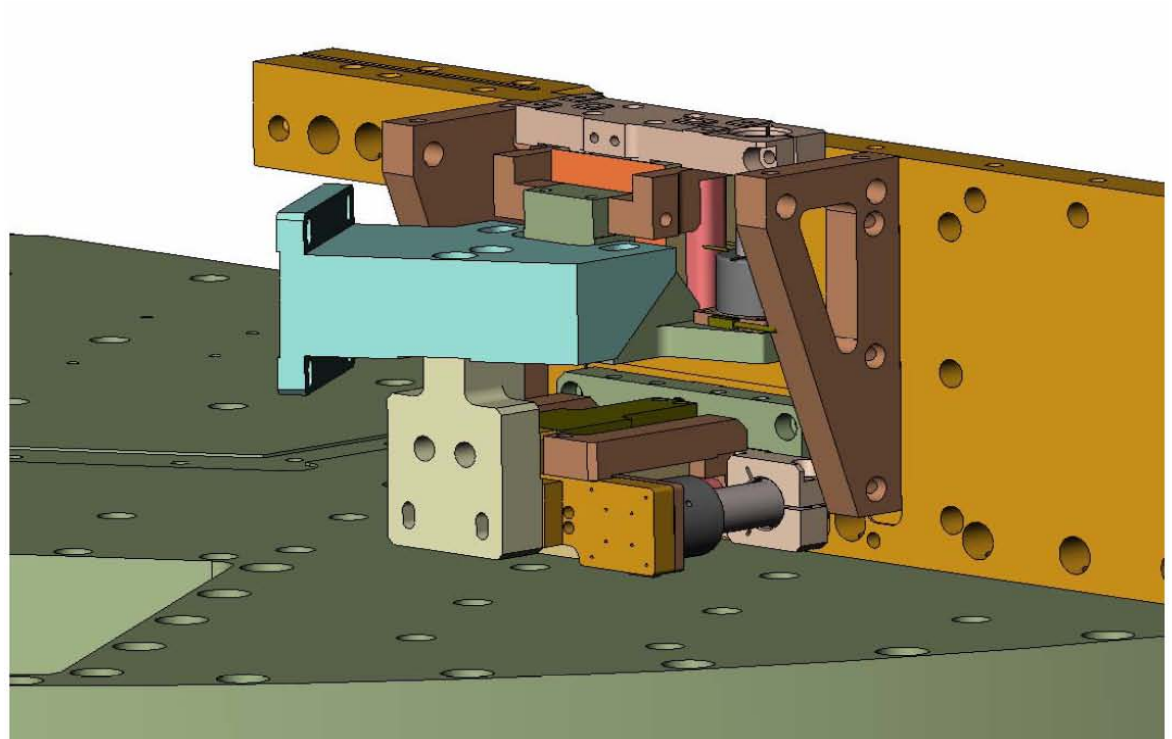




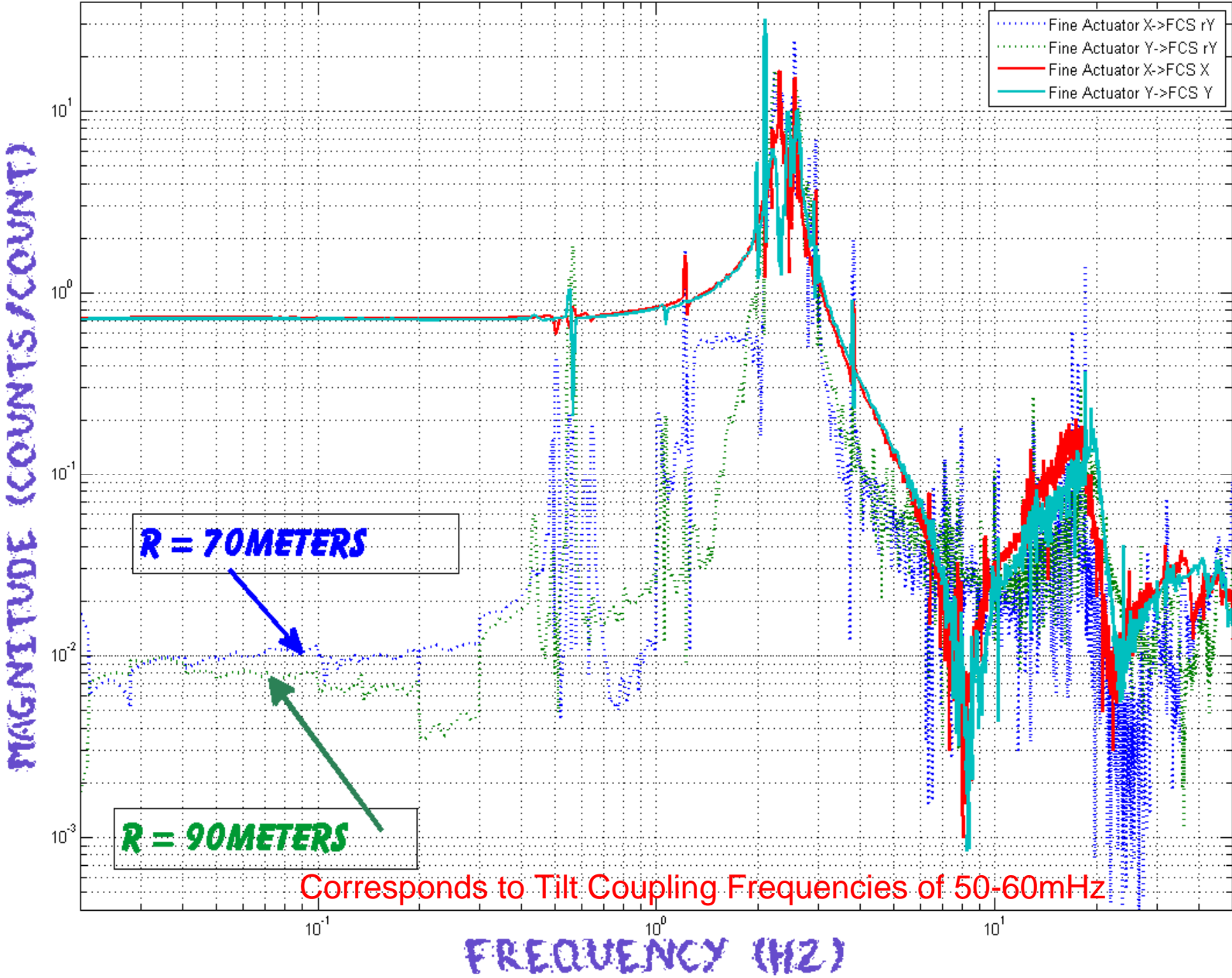
**Stage 1-2  
Actuator  
Mounting  
Redesign**



**(Moved  
down by  
1.835")**



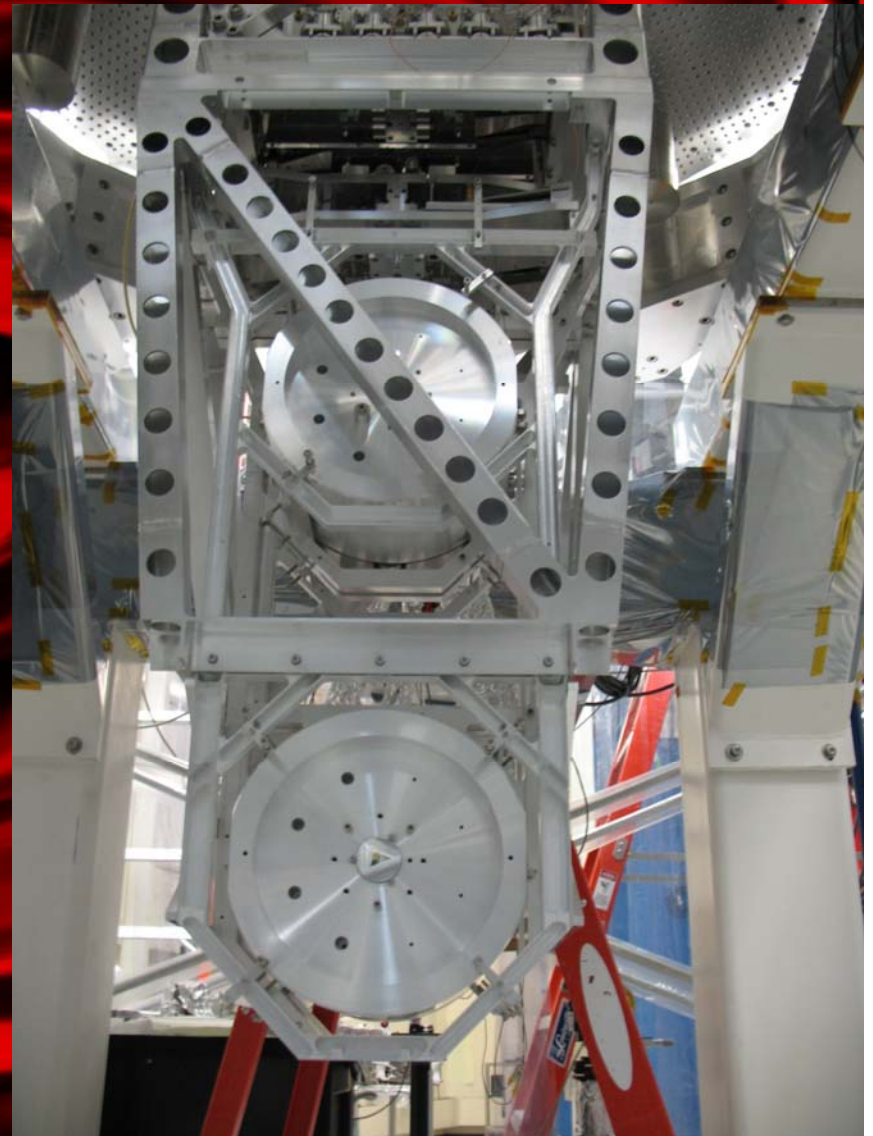
# Stage 2 Angular Coupling



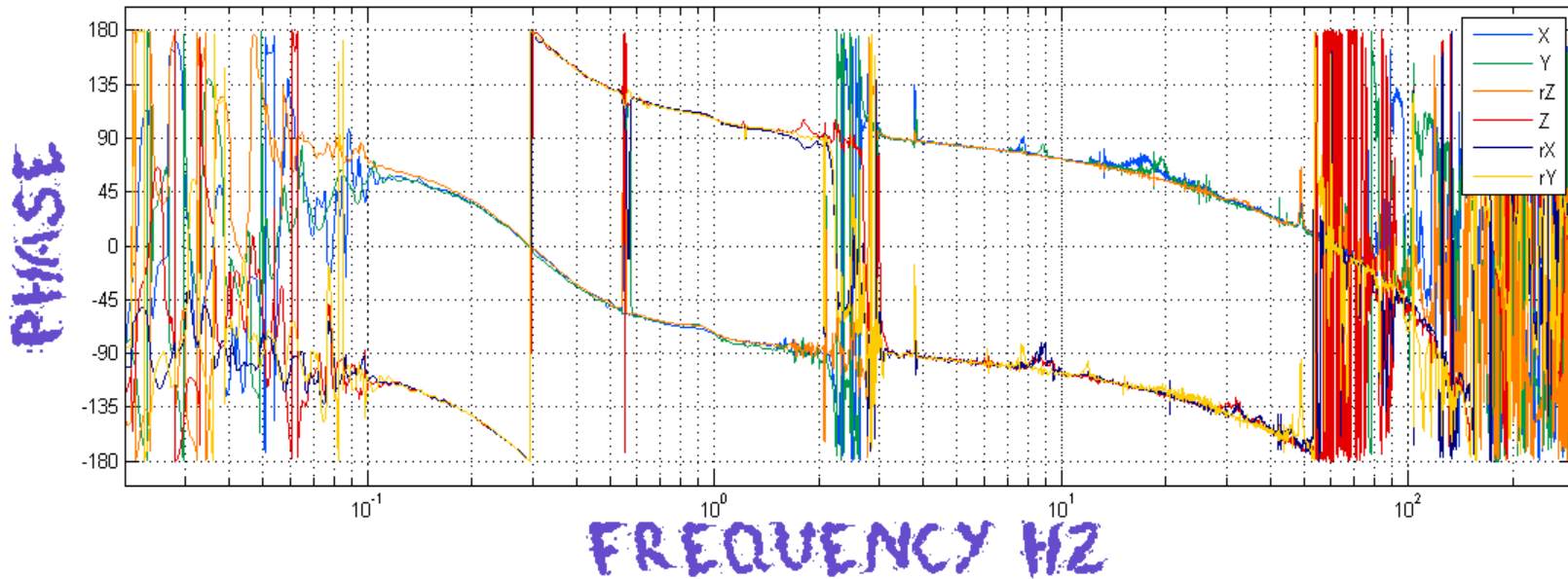
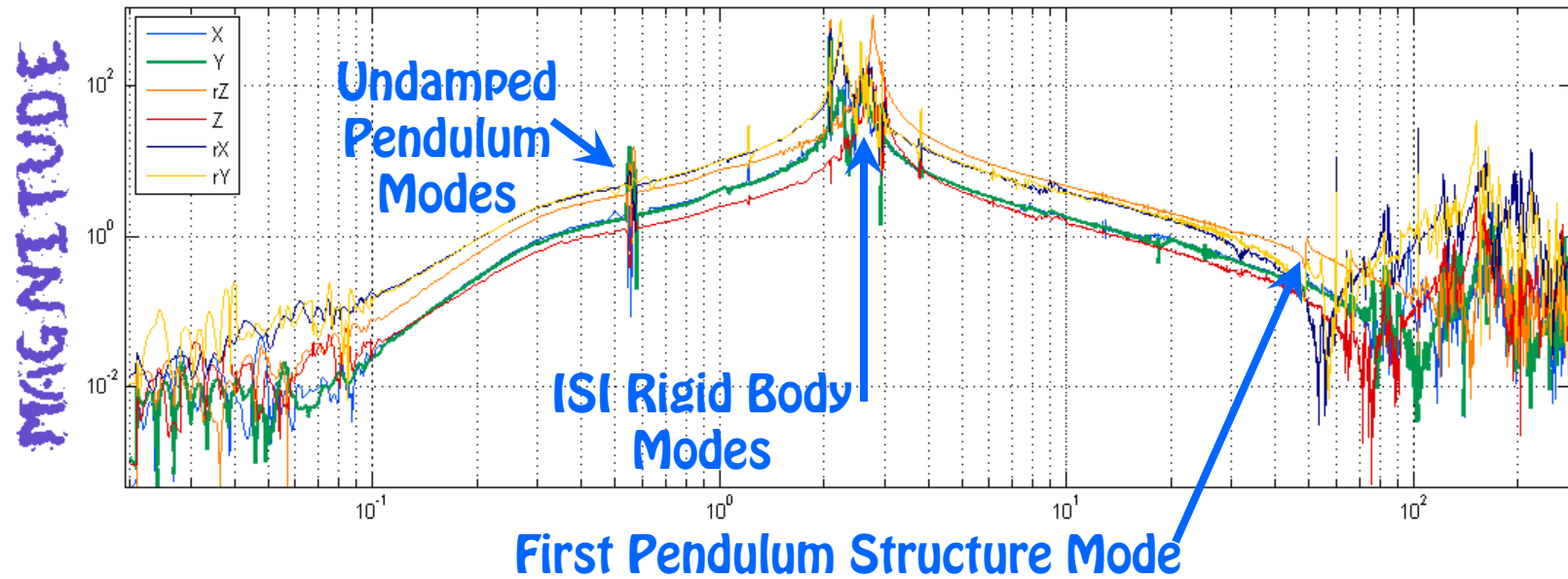


# Quad/TST Interactions

We took a complete system identification of stage 2 actuators to the stage 2 sensors and found that while the added resonances from the pendulum structure were lower than anticipated that they do not couple to the  $\dot{\theta}$  sensors particularly strongly

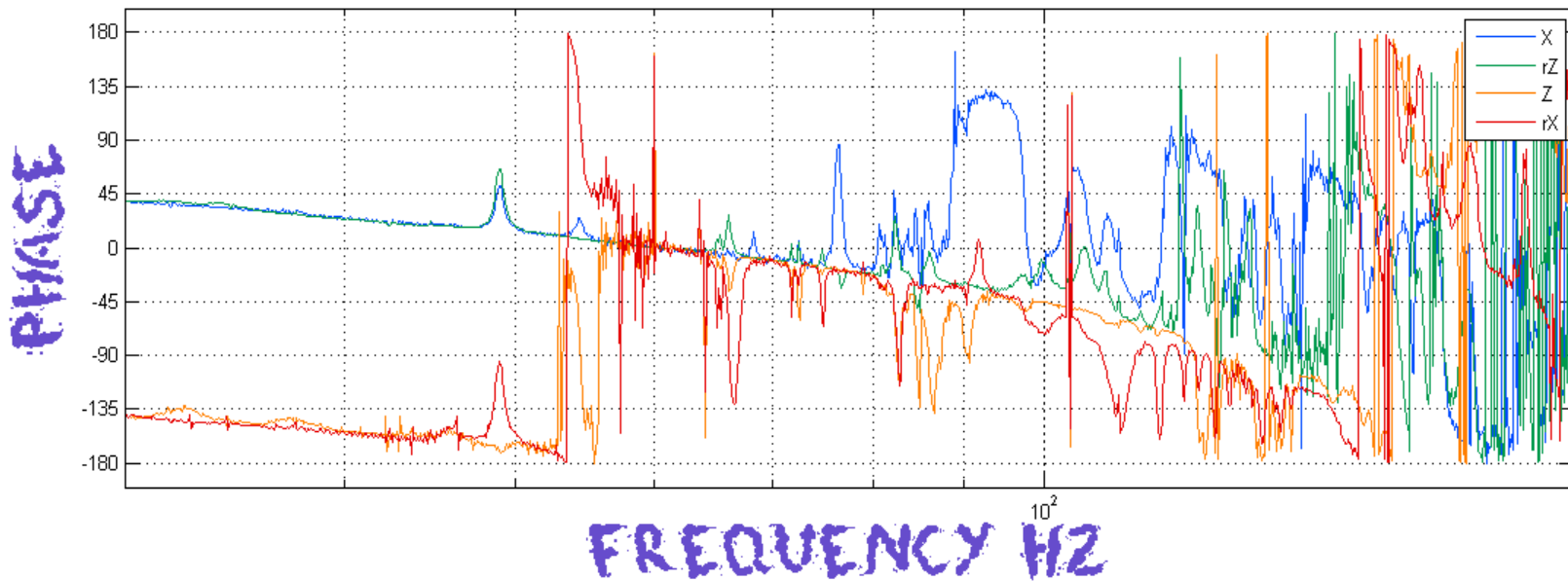
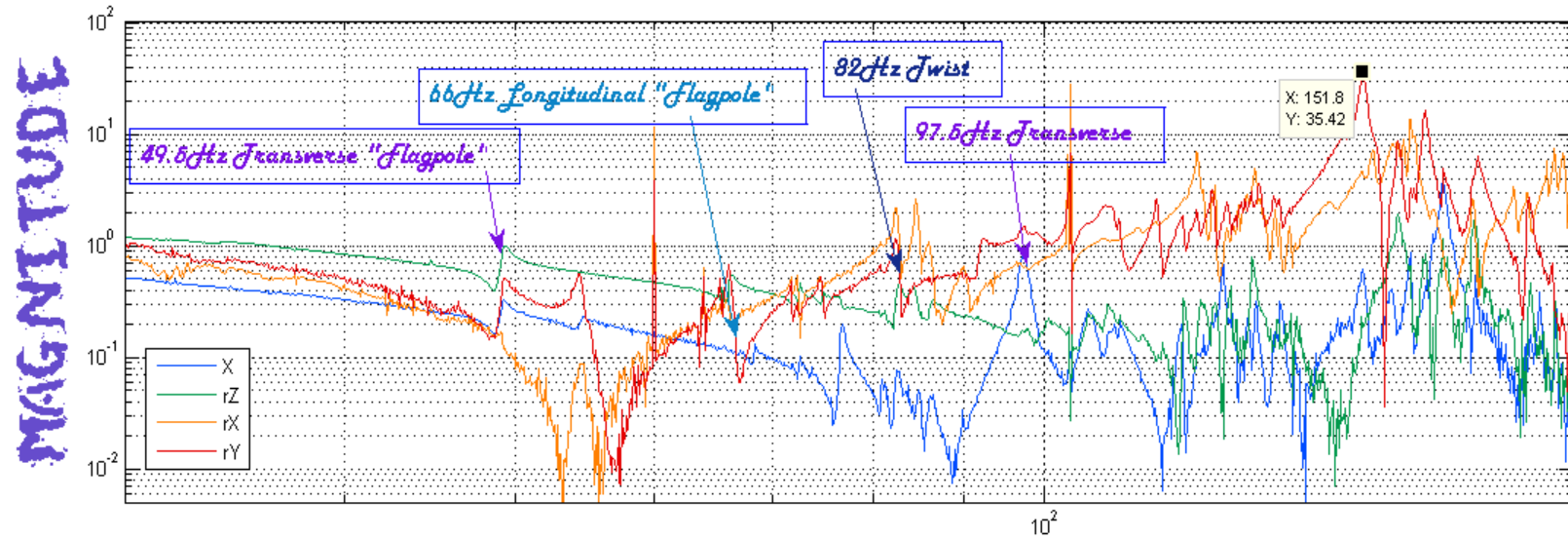


# GS13 Modal Transfer Functions

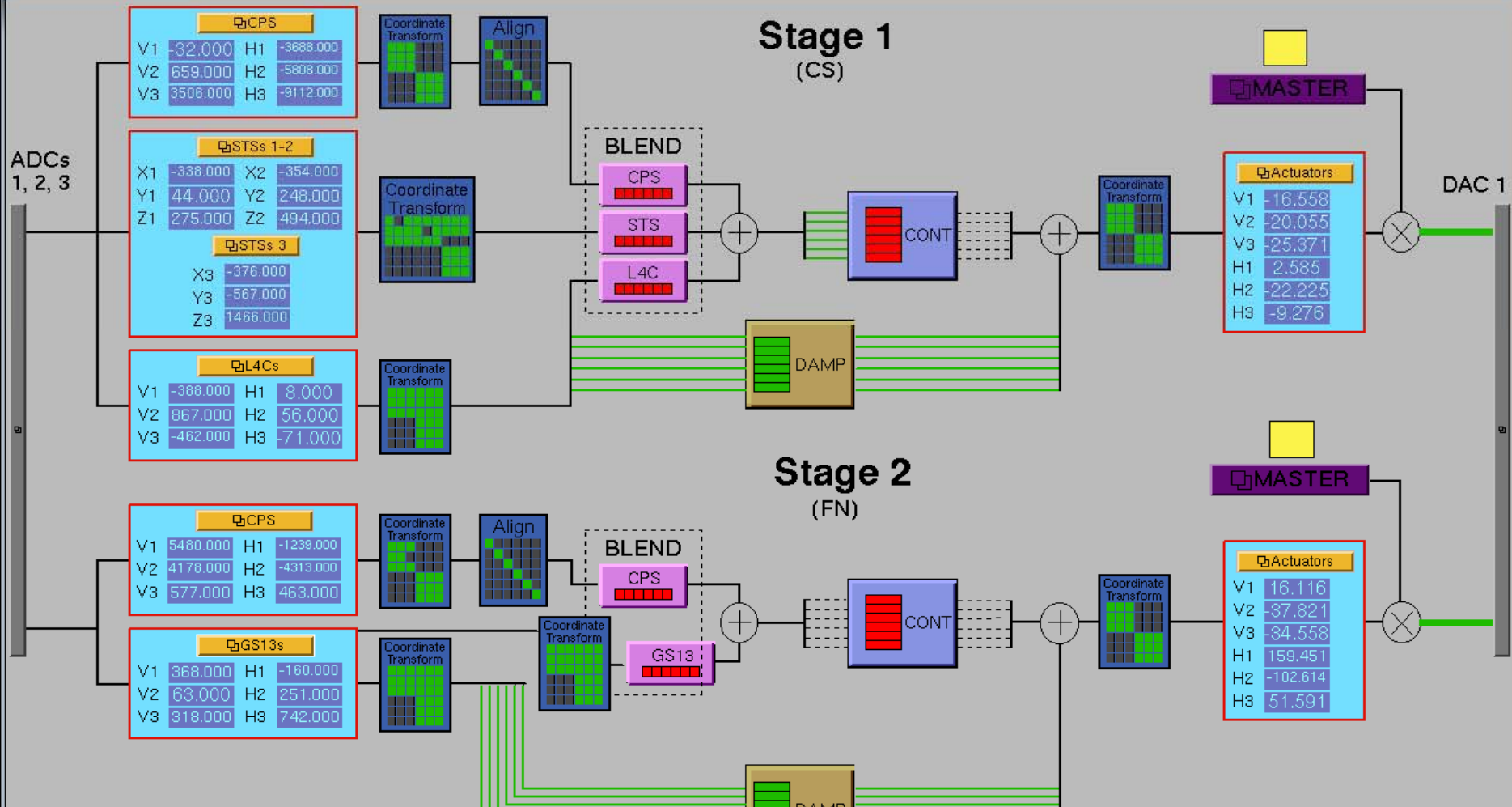




# CS13 Modal Transfer Functions



M1ISI\_OVERVIEW.adl



**CPS**

V1	-32.000	H1	-3688.000
V2	659.000	H2	-5808.000
V3	3506.000	H3	-9112.000

**STSs 1-2**

X1	-338.000	X2	-354.000
Y1	44.000	Y2	248.000
Z1	275.000	Z2	494.000

**STSs 3**

X3	-376.000
Y3	-567.000
Z3	1466.000

**L4Cs**

V1	-388.000	H1	8.000
V2	867.000	H2	56.000
V3	-462.000	H3	-71.000

**CPS**

V1	5480.000	H1	-1239.000
V2	4178.000	H2	-4313.000
V3	577.000	H3	463.000

**GS13s**

V1	368.000	H1	-160.000
V2	63.000	H2	251.000
V3	818.000	H3	742.000

**Actuators**

V1	-16.558
V2	-20.055
V3	-25.371
H1	2.585
H2	-22.225
H3	-9.276

**Actuators**

V1	16.116
V2	-37.821
V3	-34.558
H1	159.451
H2	-102.614
H3	51.591

**Quad Damping**

Feedback	Switch	RMS Sensor Sigs < 100 = Good	
Main	React	Main	React
X	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Y	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Z	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Yaw	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Pitch	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Roll	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Watch Dog	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

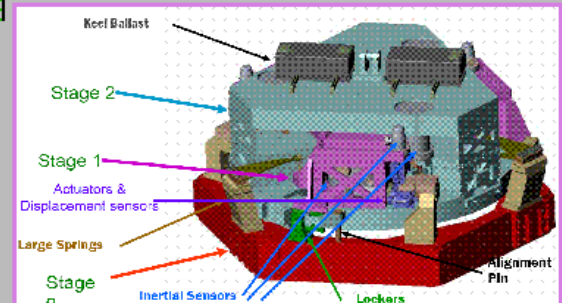
  

F1	1.6	9.1
F2	2.3	3.7
F3	1.6	3.3
L	1.7	2.0
S	1.9	3.1

**Monitor**  **TP**  **BIO**

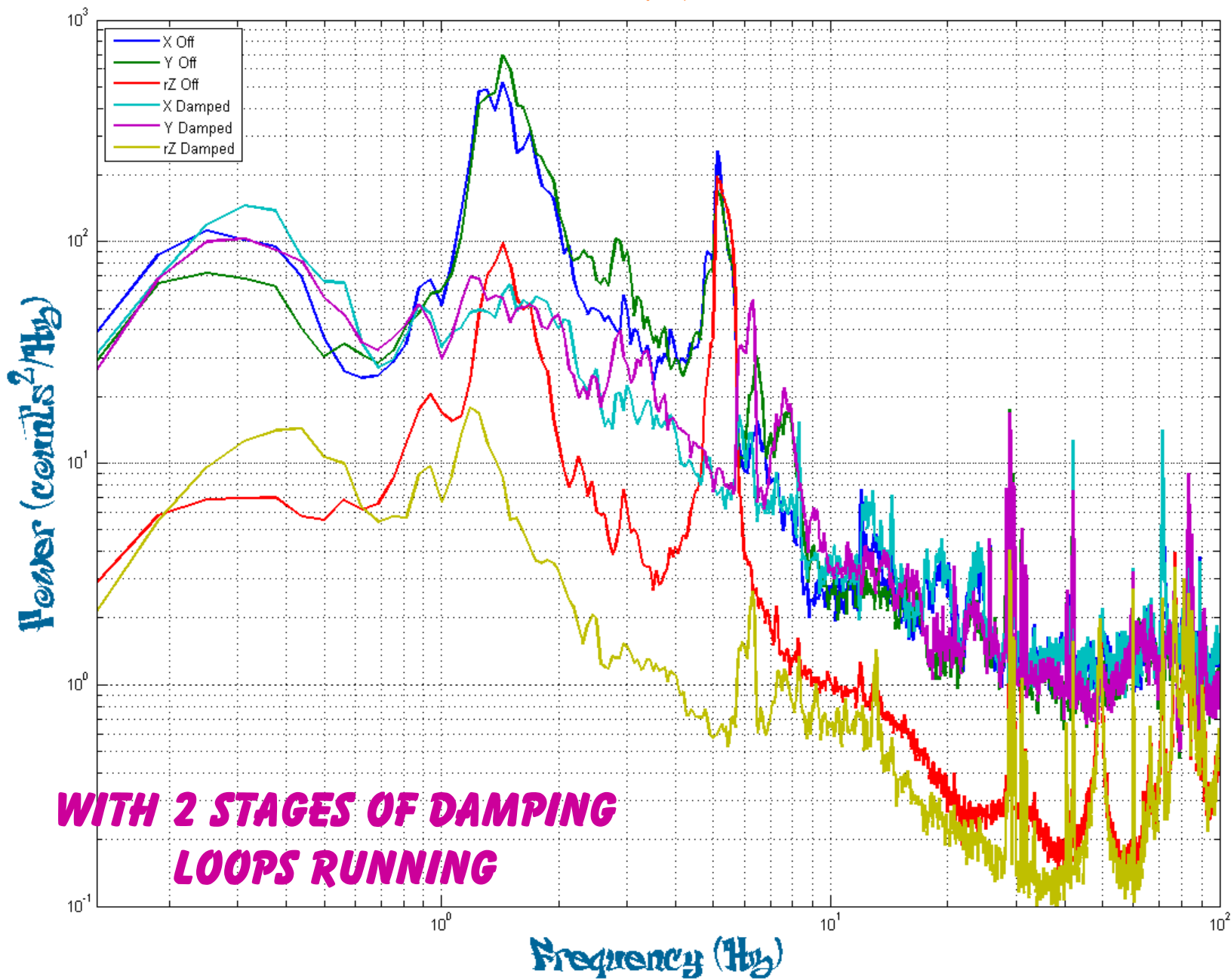
**OVERFLOW** 0

Load Coefficients  
Coef file load complete

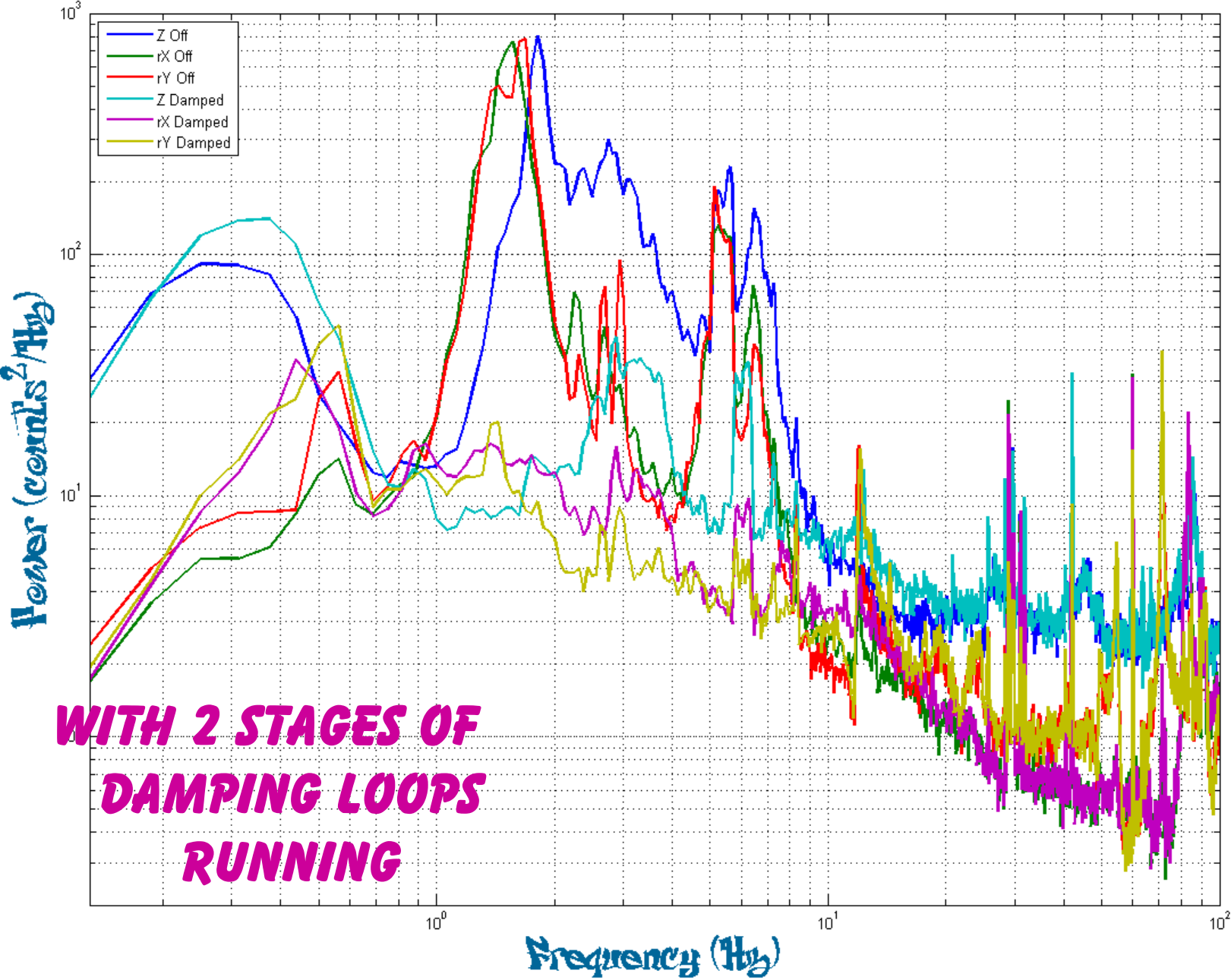




# Horizontal GS13s



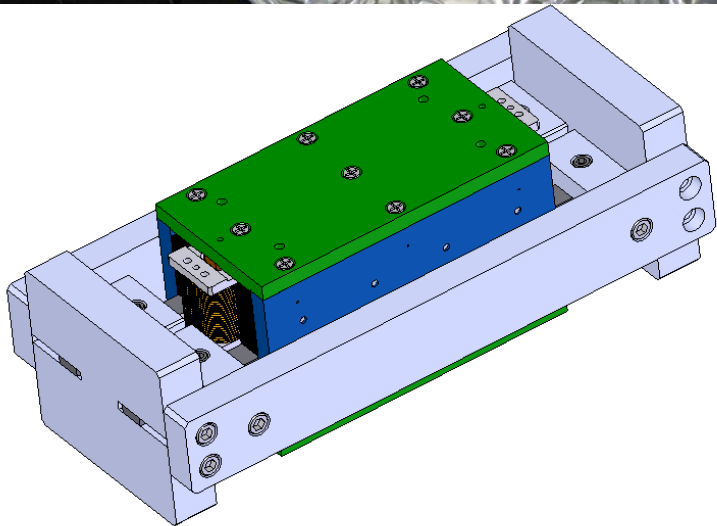
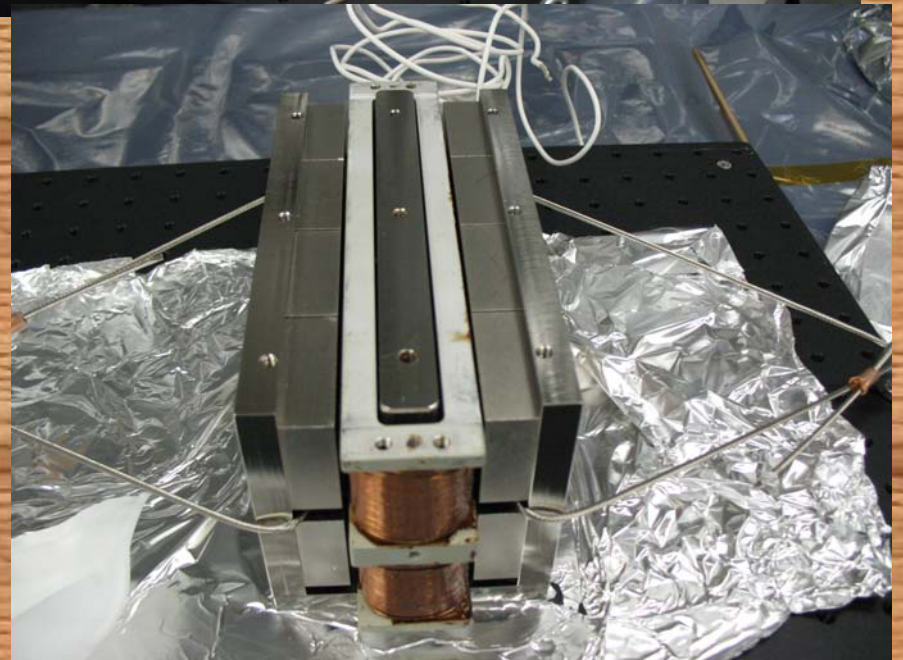
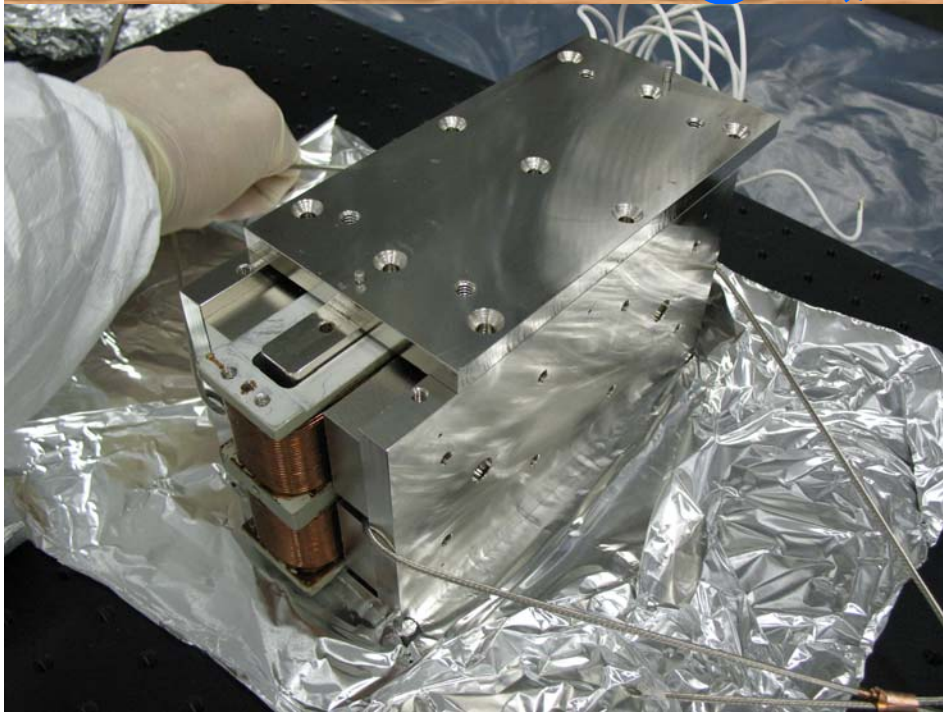
# Vertical GS13s



**WITH 2 STAGES OF DAMPING LOOPS RUNNING**



# Cracking Open an Actuator





# OTHER STUFF

- Redesigned both actuators
  - Increased gaps
  - Improved wire break offs
  - Adjusted strength
- Improved the spring loading tooling
- Still have a long list of design changes and modifications to work on





