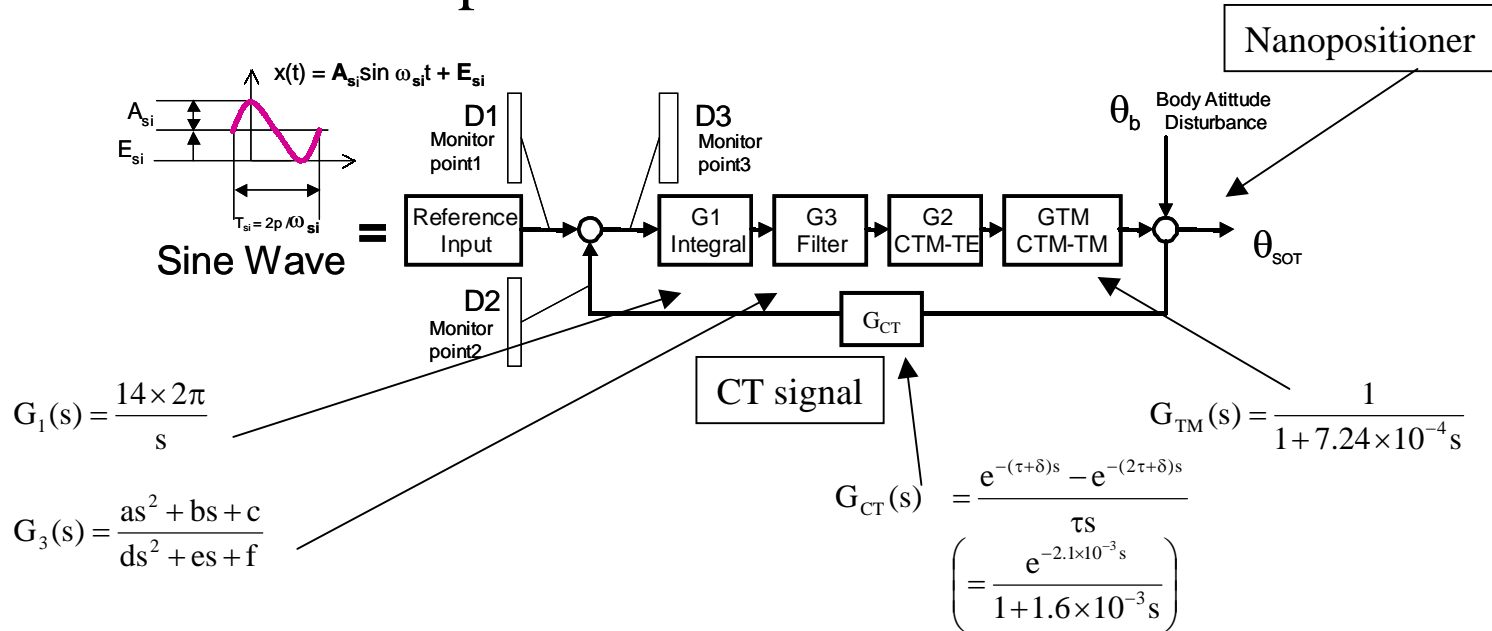


SOT image stabilization capability: PM CT-CTM combination test report

S.Nagata (NAOJ)

1. To confirm that the problems found during PM system test are settled; re-integration of FPP-E and CTM system.
2. To evaluate of CT-CTM Closed loop servo system performance.
3. Evaluation of all the Operational flow given in Appendix I of FPP EICA
 - Base line test
 - Open loop test
 - Closed loop test
 - Transfer function measurement
 - Jitter reduction test
 - Grounding test

Servo Loop Model and method of the test



Transfer function measurement
(gain and phase can be measured)

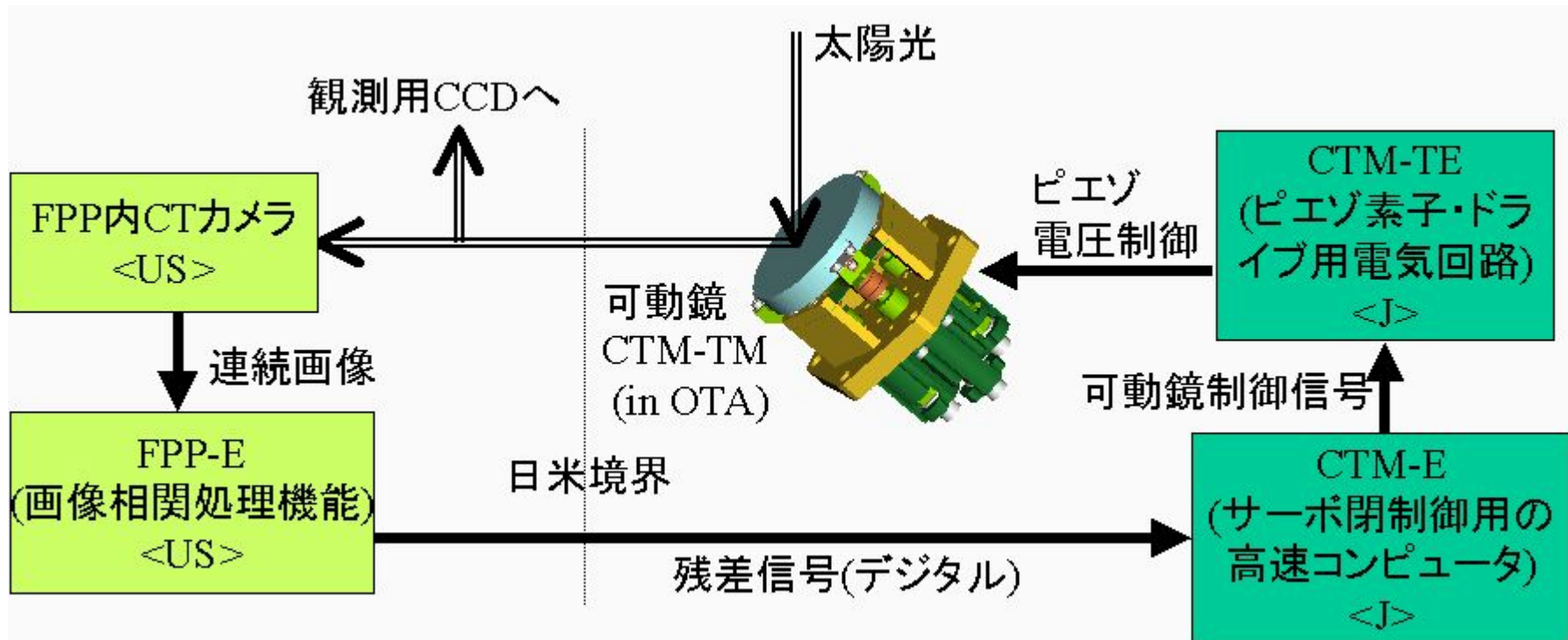
$$G(s) = G_1(s) \times G_2(s) \times G_3(s) \times G_{TM}(s) = \frac{D2}{D3}$$

$$\text{Gain: } |G(s)| = \left| \frac{D2}{D3} \right|$$

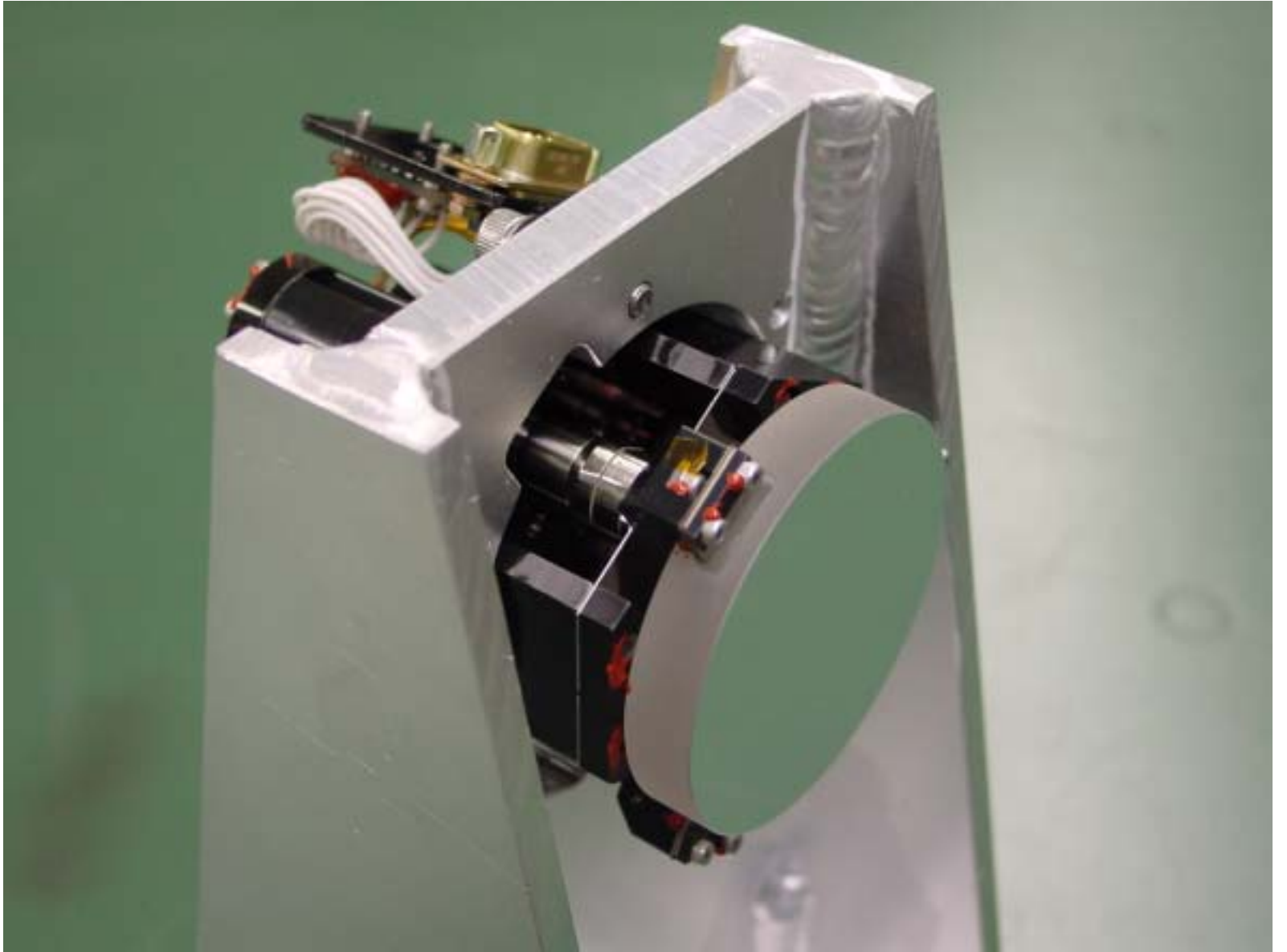
$$\text{Phase: } \angle G(s) = \angle D2(s) - \angle D3(s)$$

Jitter reduction measurement
(only gain can be measured)

$$\frac{\text{CTsignal}}{\theta_b} = \left| \frac{G_{CT}}{1 + G_{CT} \times G_1 \times G_2 \times G_3 \times G_{TM}} \right|$$

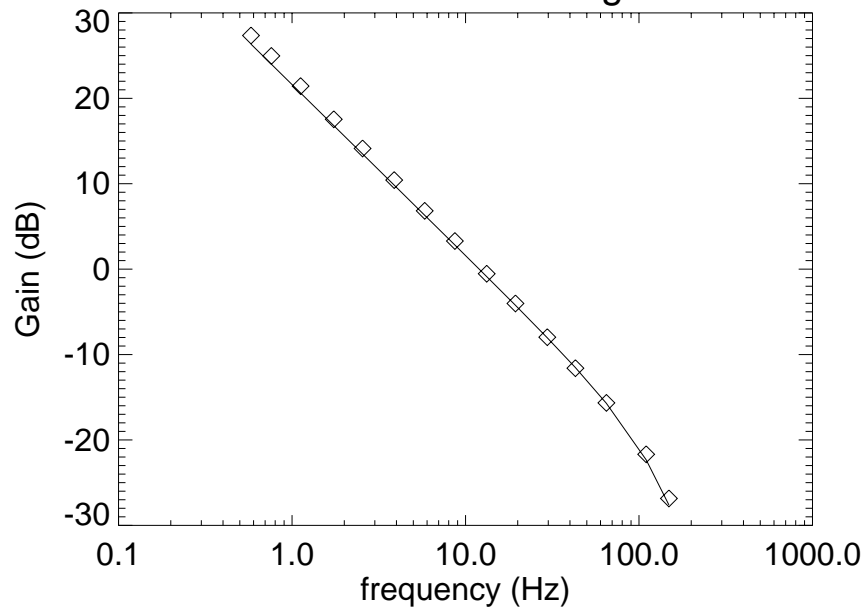




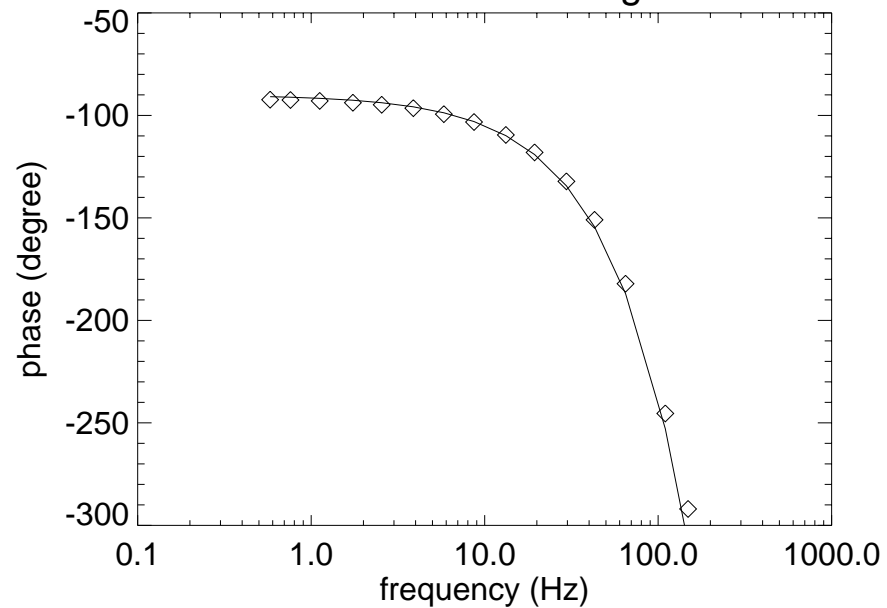




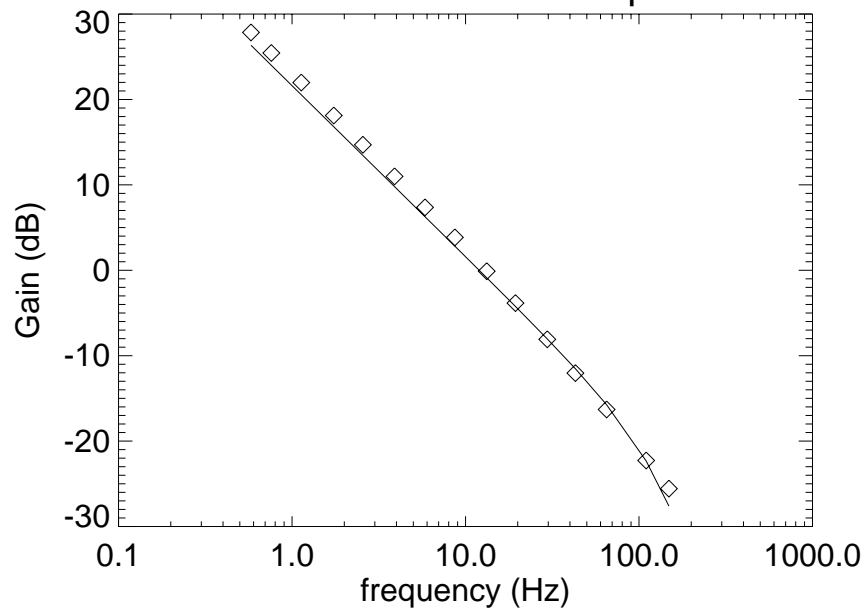
Transfer function of Y: granule



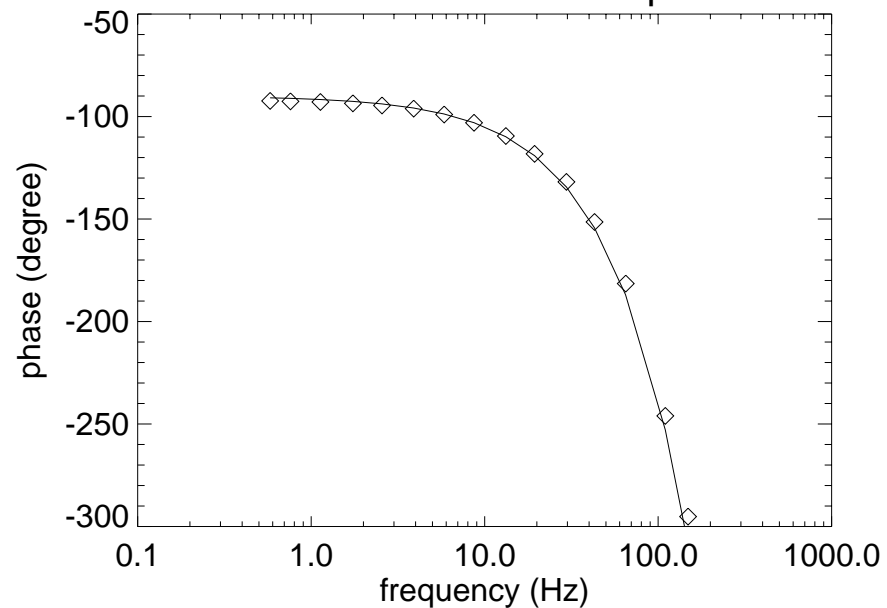
Transfer function of Y: granule



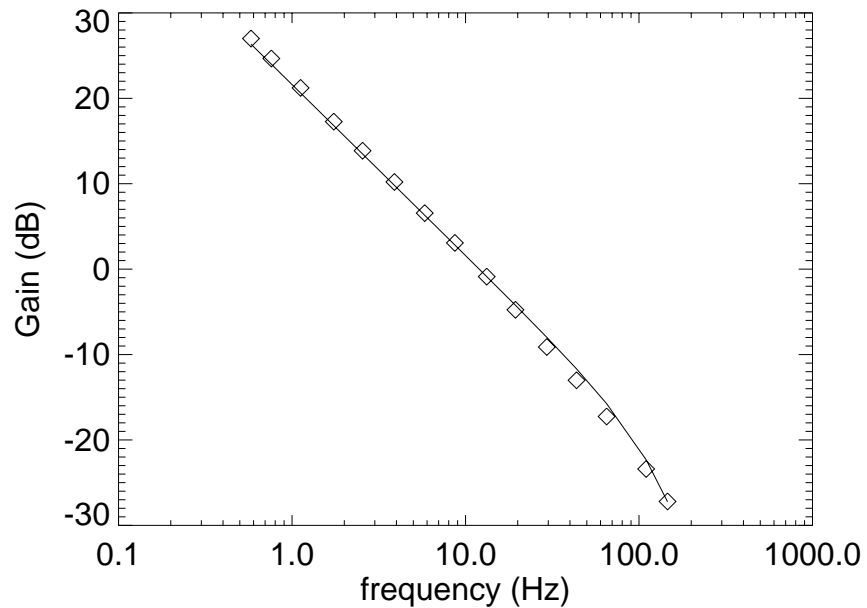
Transfer function of Y: pore



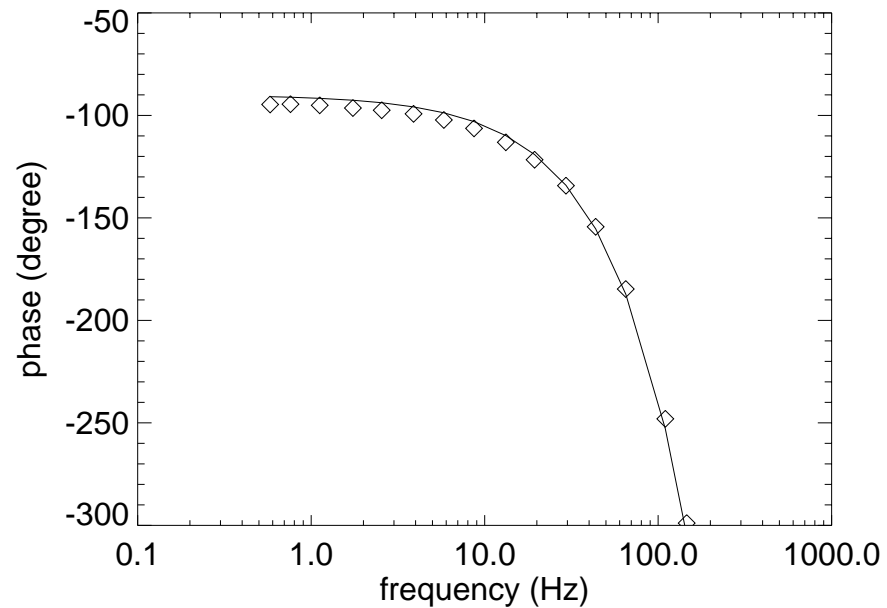
Transfer function of Y: pore



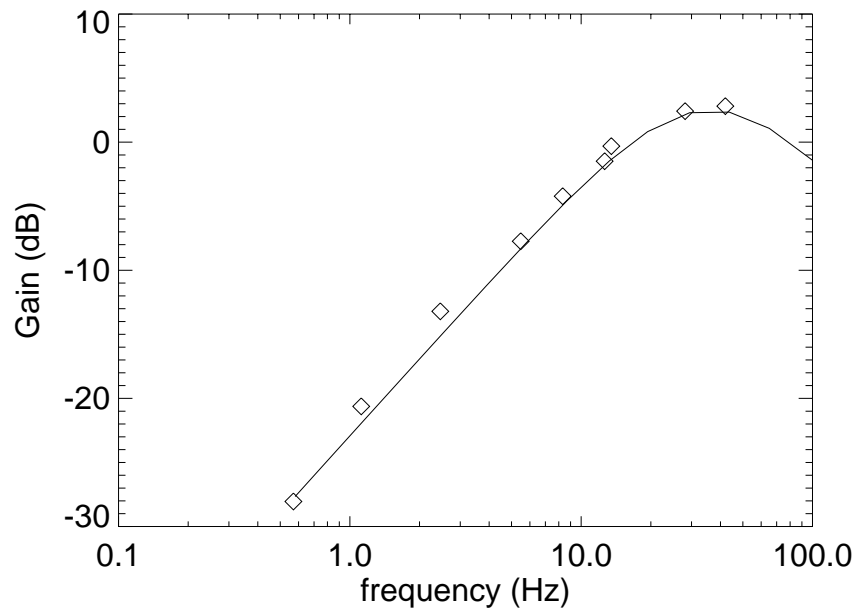
Transfer function of X: Low Gain



Transfer function of X: Low Gain



Jitter reduction of X: Low Gain



Jitter reduction of X: Low Gain

