

TAMA Status Report

- o SAS Installation

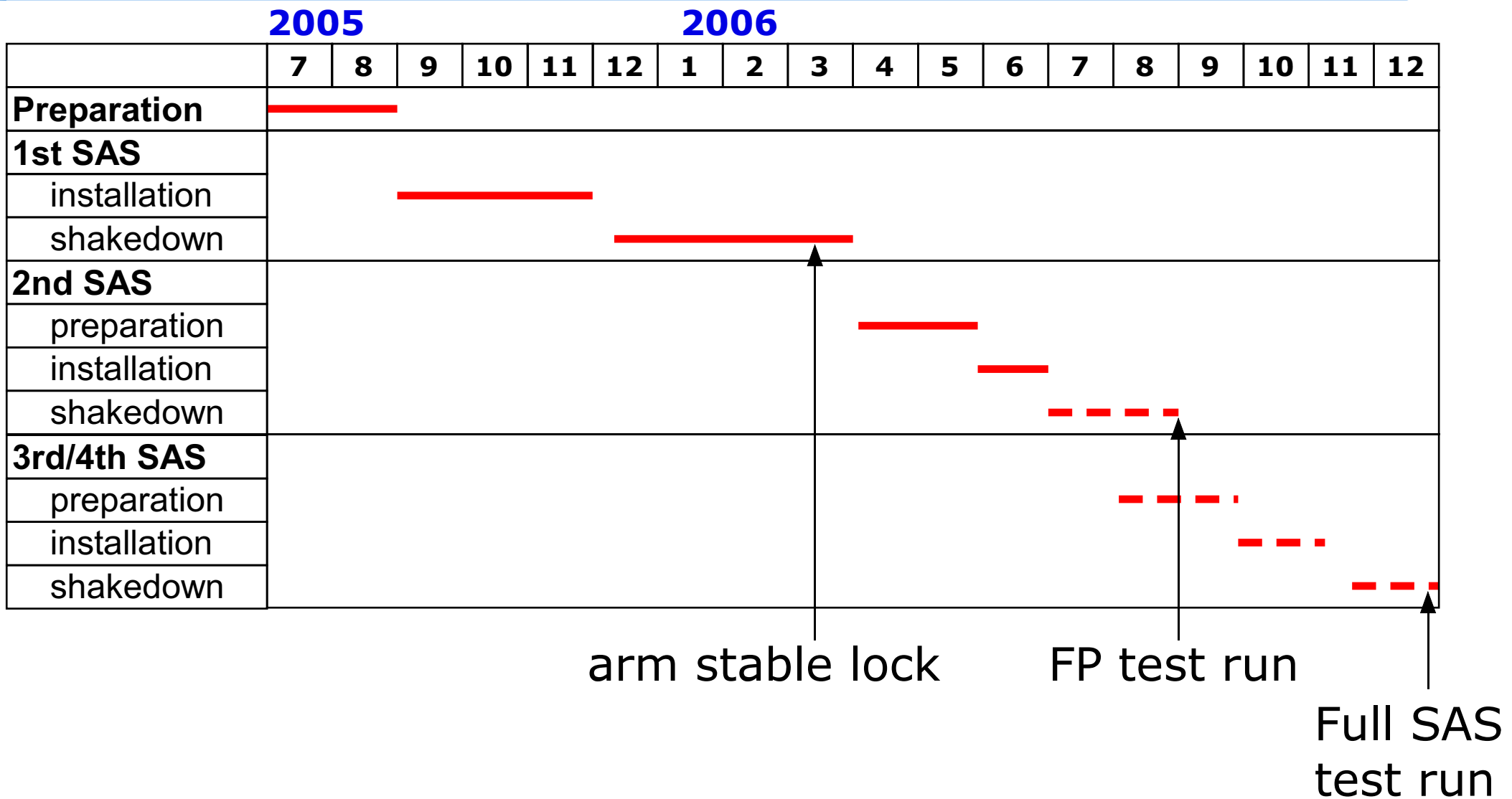
(Takahashi, Agatsuma, Arase +all)

- o Revisiting TAMA (Aso, Tatsumi, Arai)

- o TAMA interferometer work

(Nakagawa, Tatsumi, Arai)

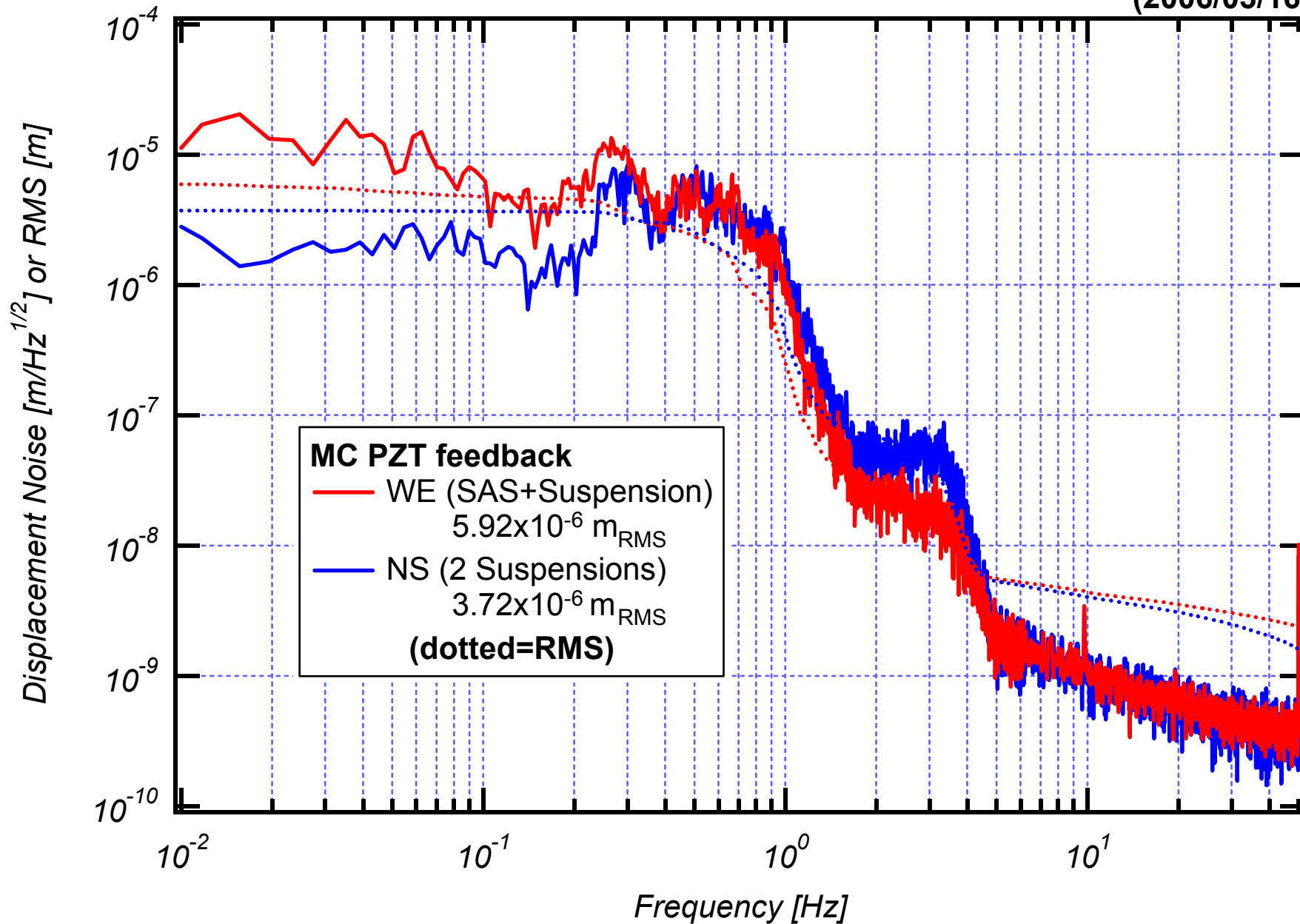
SAS installation status

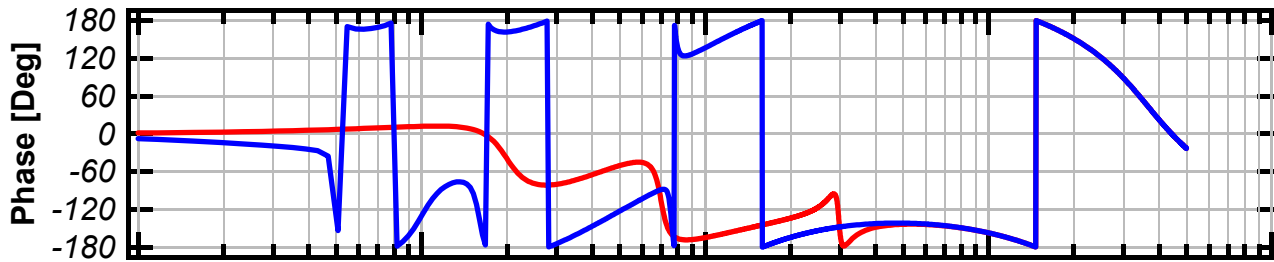
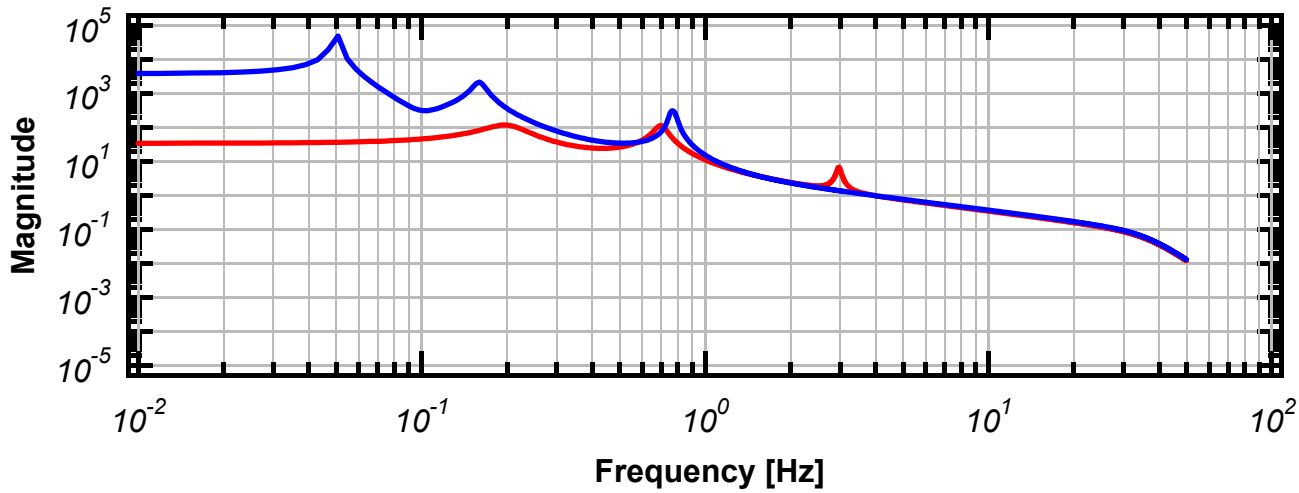


2nd SAS installation



Displacement of FP cavities estimated from MCPZTfb (2006/03/16)





RMS

Pitch Unstab: 1.84 urad

Pitch Stab: 0.093 urad

Yaw Unstab: 94.2 urad

Yaw Stab: 0.10 urad

Pitch:

Actuator Response:

factor -15.9u rad/V

pole f:2.97 q:26.8

pole f:1.84 q:3.06

zero f:1.97 q:2.57

New Filter

pole f:0.2 q:3 resonant gain1p

zero f:0.4 q:0.7 resonant gain1z

pole f:0.7 q:10 pseudo mech. reso.

zero f:2.97 q:5.3 actuator comp. (incomplete)

zero f:1.84 q:3.06 actuator comp.

pole f:1.97 q:2.57 actuator comp.

zero f:1.2 phase compensation

pole f:40 high freq roll-off

pole f:36 q:0.55 4th butterworth1

pole f:36 q:1.3 4th butterworth2

Yaw:

Actuator Response:

factor -289u rad/V

pole f:0.781 q:19.7

pole f:0.757 q:22.3

zero f:0.764 q:12.3

New Filter

pole f:0.05 integrator pair1

pole f:0.05 q:30 resonant gain1p

zero f:0.1 q:3 resonant gain1z

pole f:0.16 q:10 resonant gain2p

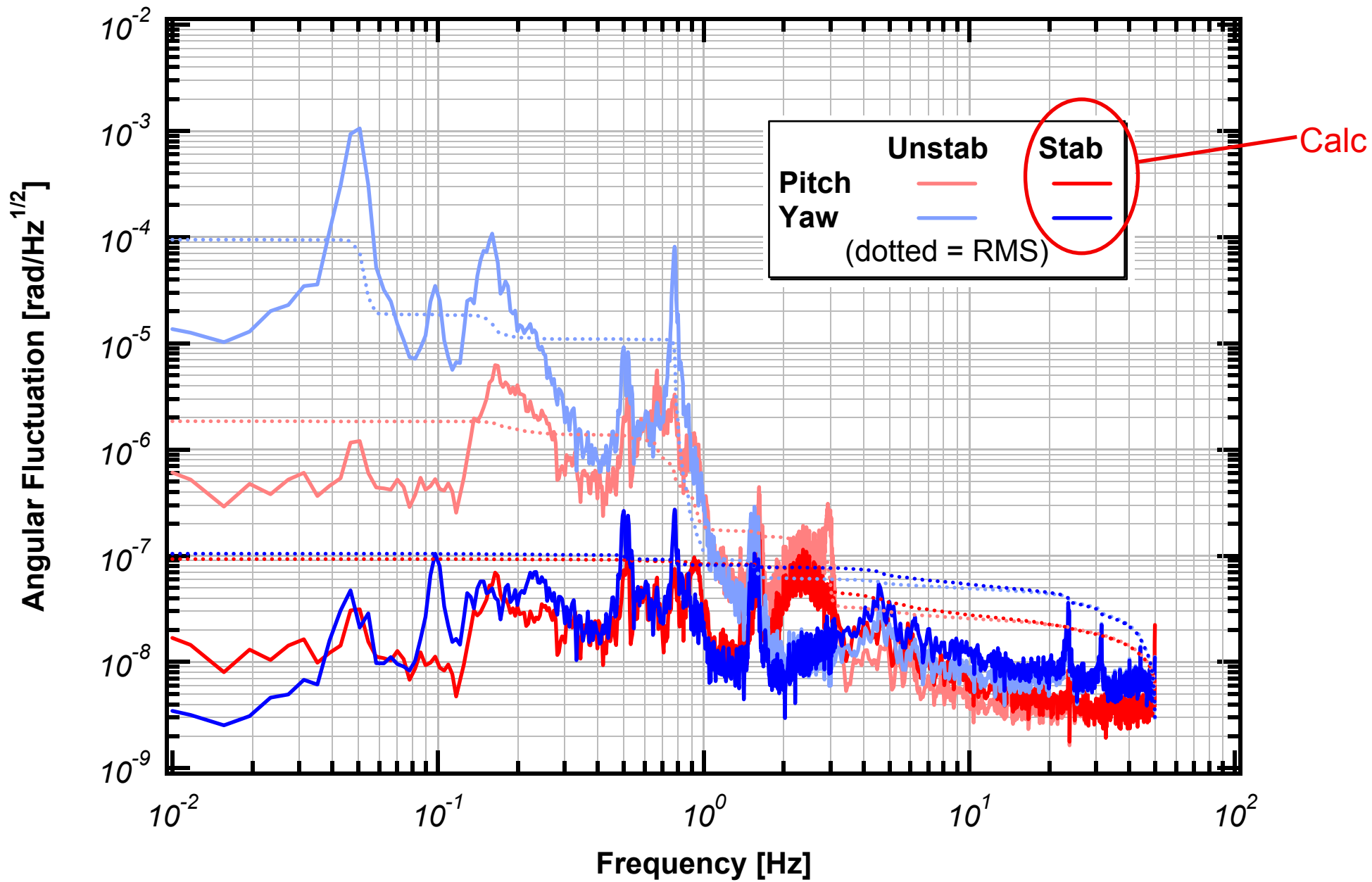
zero f:0.4 q:0.7 resonant gain2z

zero f:1.1 q:0.7 phase compensation

pole f:40 high freq roll-off

pole f:36 q:0.55 4th butterworth1

pole f:36 q:1.3 4th butterworth2



TAMA interferometer work

- o Revisiting TAMA (Aso, Tatsumi, Arai)
- o L- improvement plan
- o TAMA mid-time scale improvement plan (Tatsumi)
Target: $dx = 3 \times 10^{-19}$ m/rtHz@100Hz

Alignment noise - WFS / beam jitter => MC Alignment

dL- gain distribution Preemphasis/Deemphasis

dI- feedforward 1%

intensity noise reduction

oscillator phase noise reduction / coupling reduction

- o CLIOとの共通技術が多い

共同開発およびCLIO-TAMAへのもしくは逆が望ましい

TAMA->CLIO技術移転、

CLIO->TAMA技術移転