

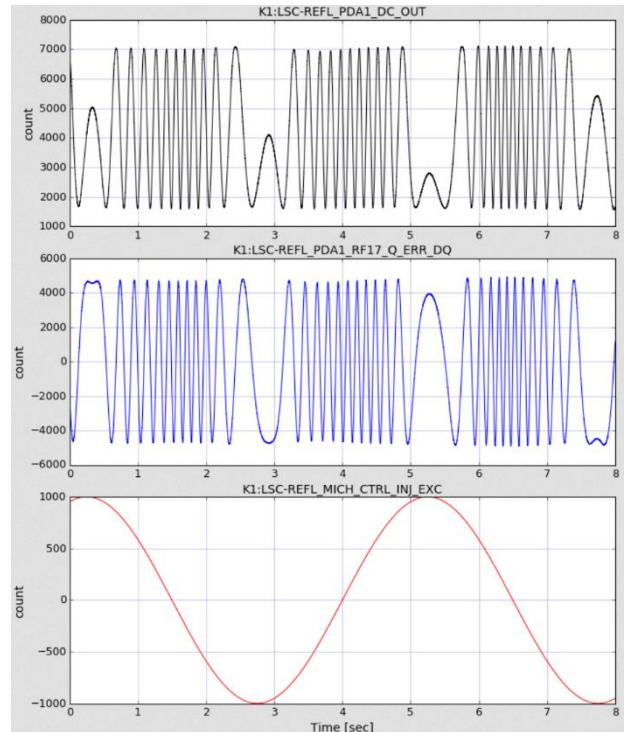
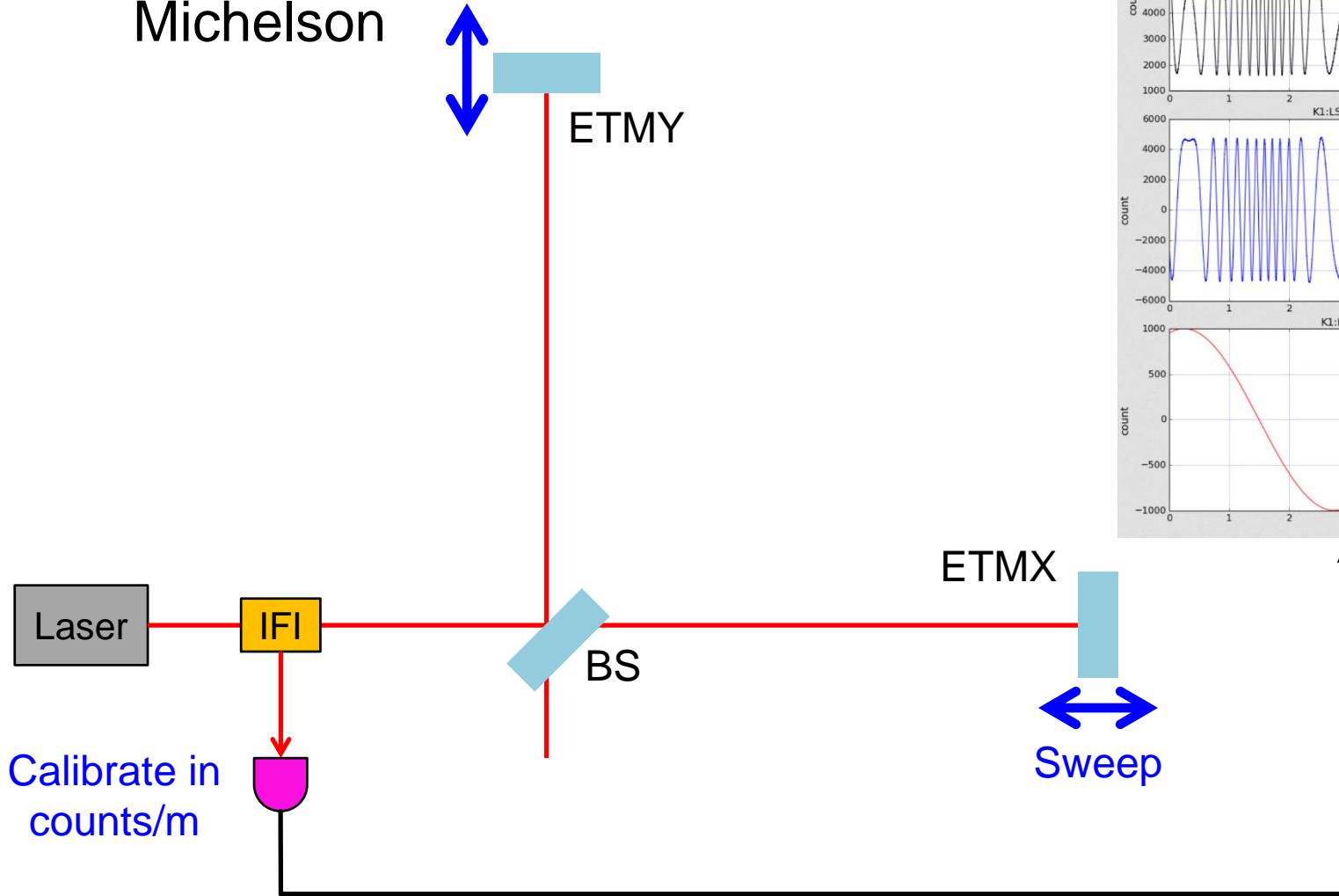
# Basic Idea of iKAGRA Calibration

Yuta Michimura

Department of Physics, University of Tokyo

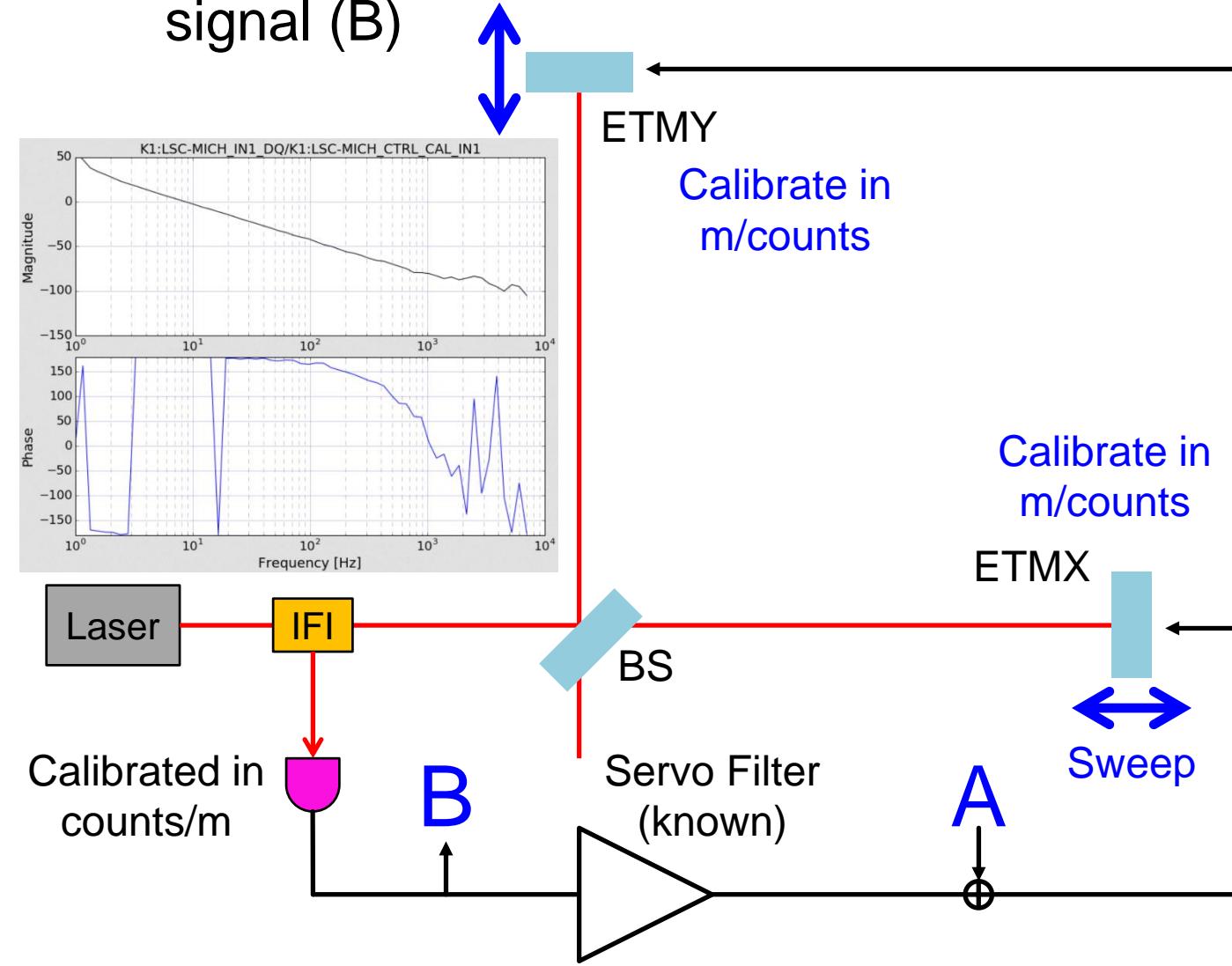
# Optical Gain Calibration

- Calibrate optical gain by sweeping Michelson



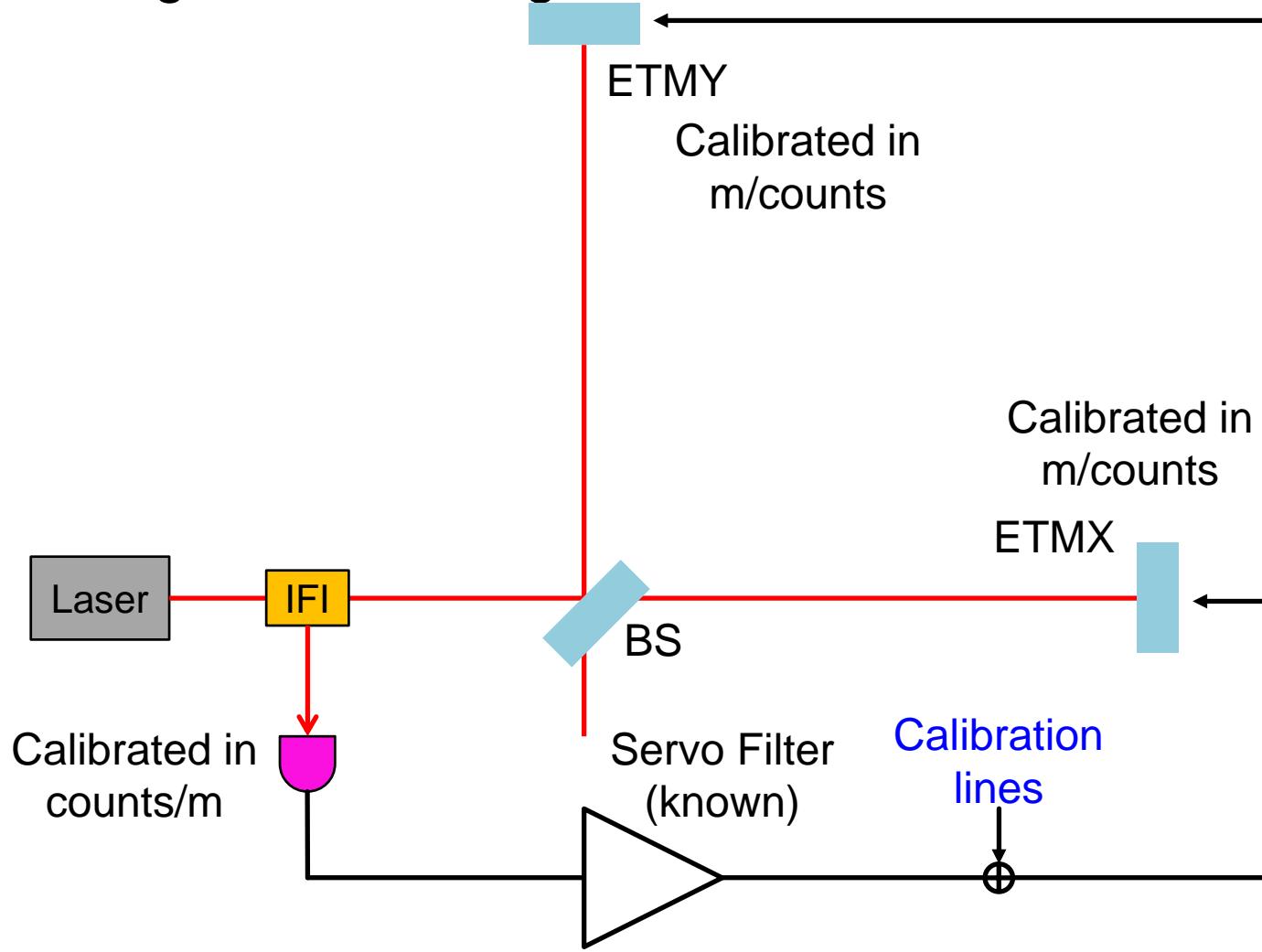
# Actuator Efficiency Calibration

- Lock Michelson and measure TF from actuation (A) to error signal (B)



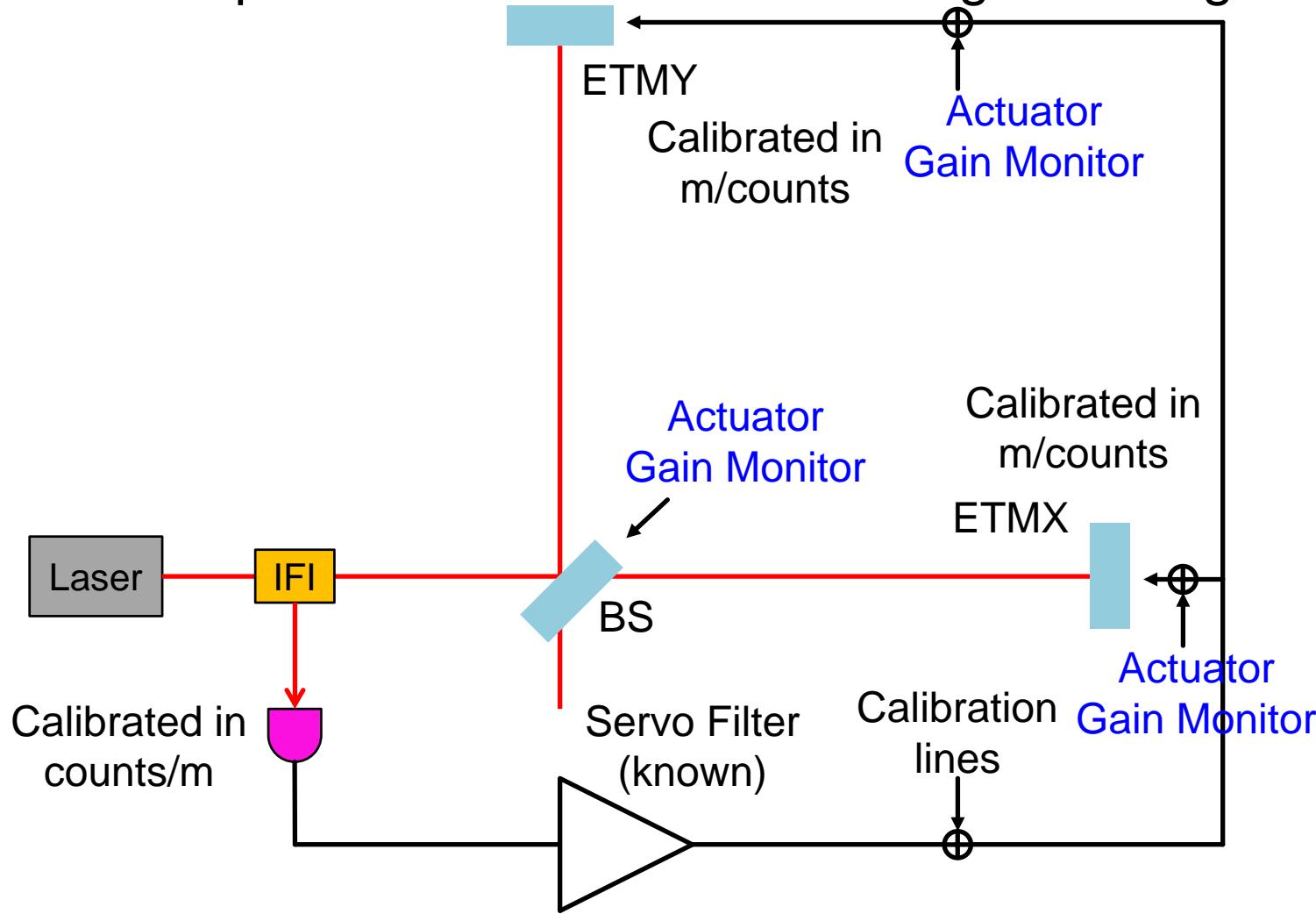
# Calibration Lines

- Injected calibration lines (80Hz, 135Hz) to monitor openloop gain drift during test runs



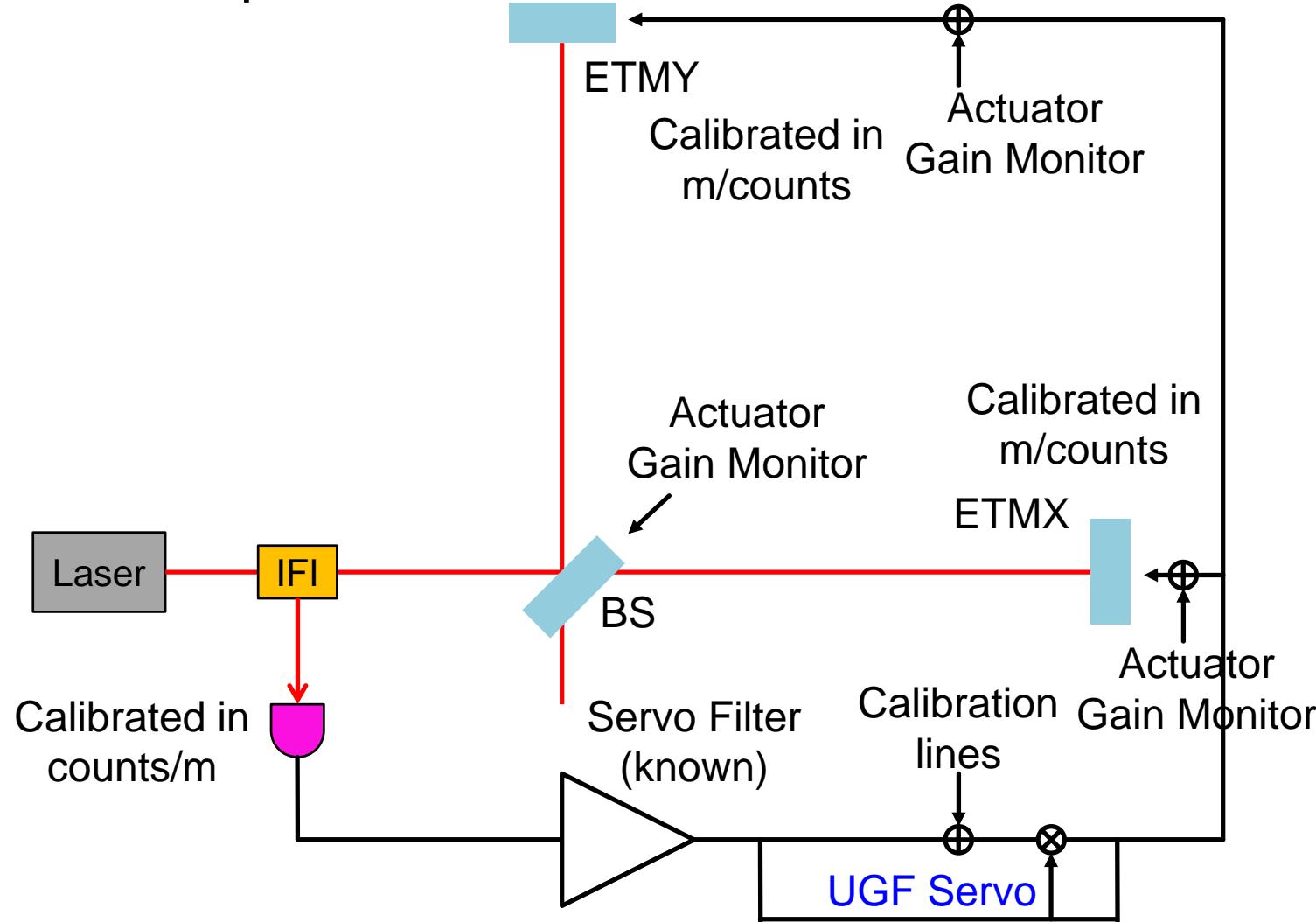
# Actuator Gain Monitor (Apr only)

- Injected calibration lines with different frequency by suspensions to monitor actuator gain change



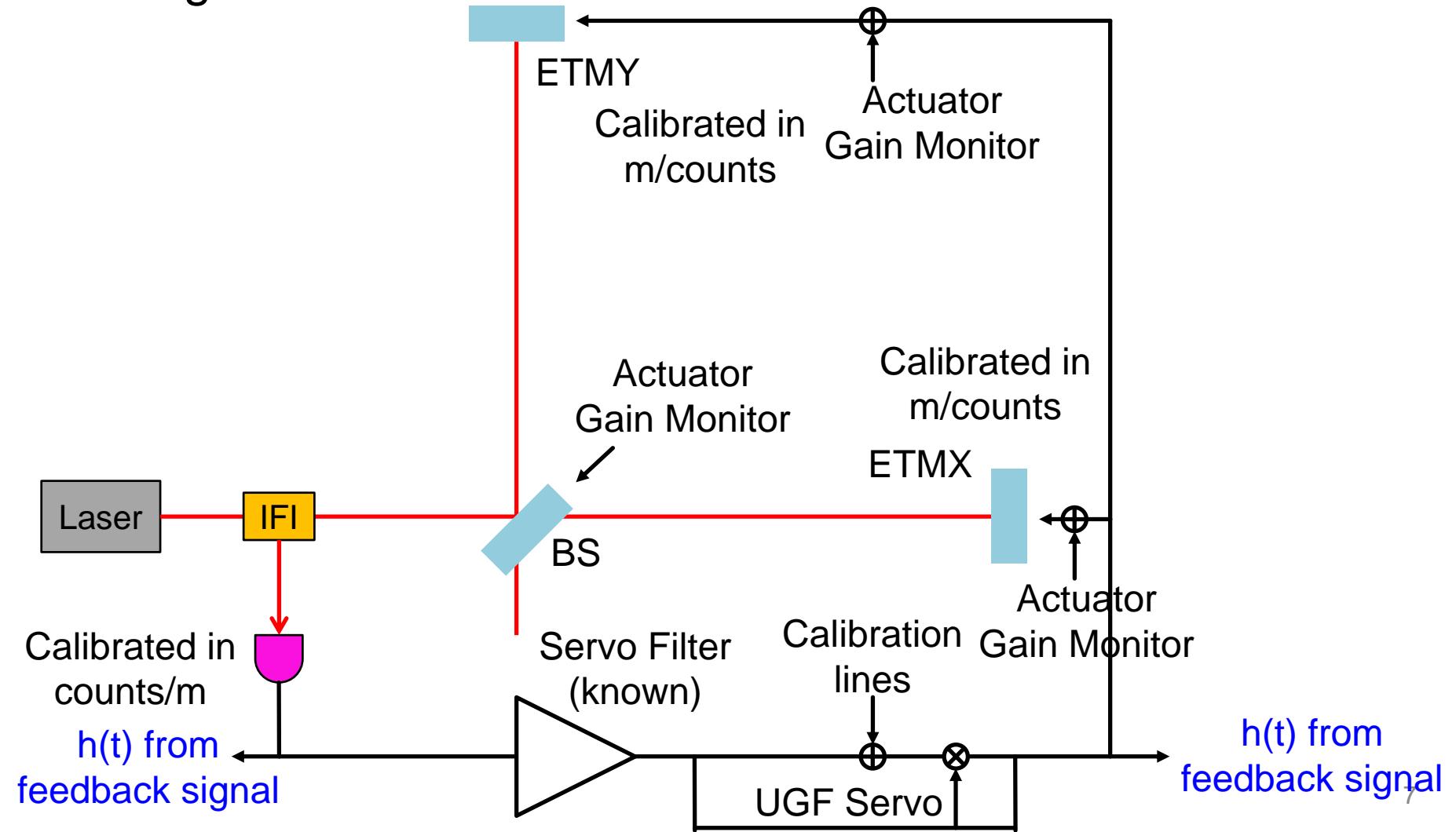
# UGF Servo (Apr only)

- Change filter gain according to measured gain change to keep UGF constant



# $h(t)$ Generation

- $h(t)$  can be generated using error signal and/or feedback signal

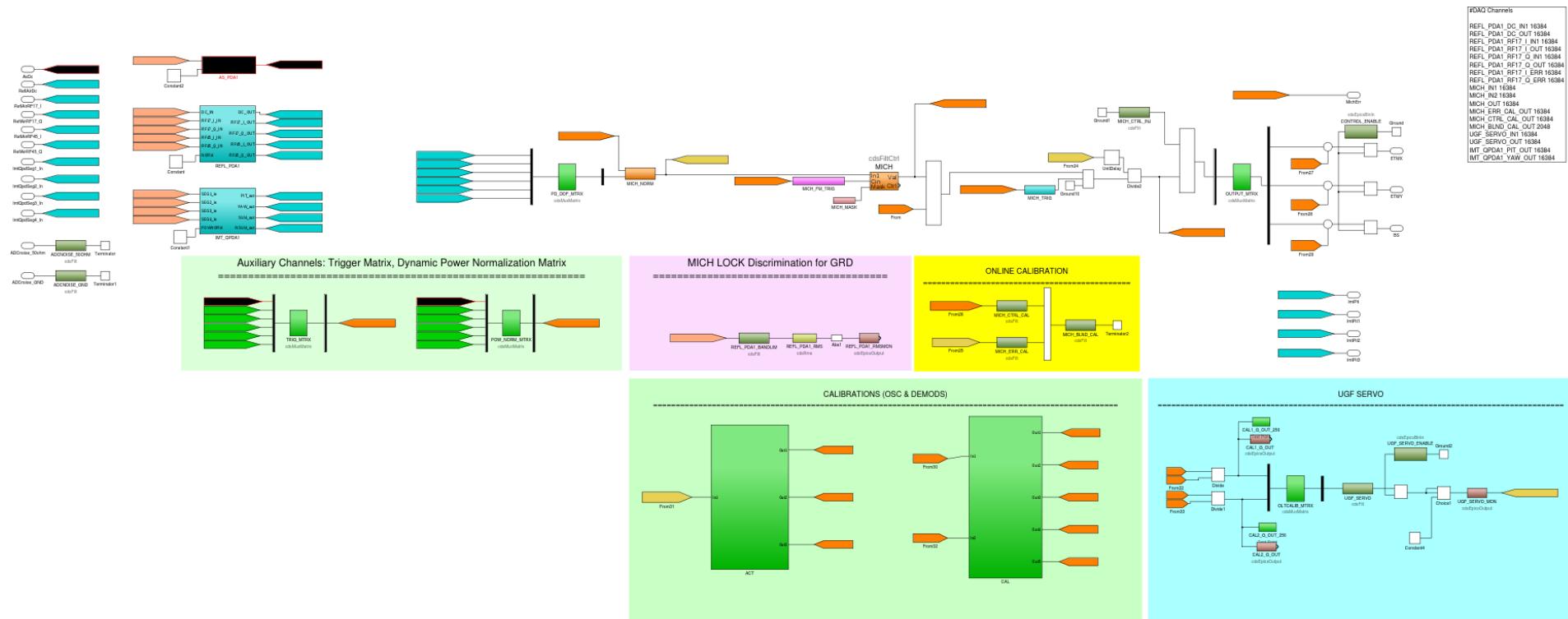


# Further Reading

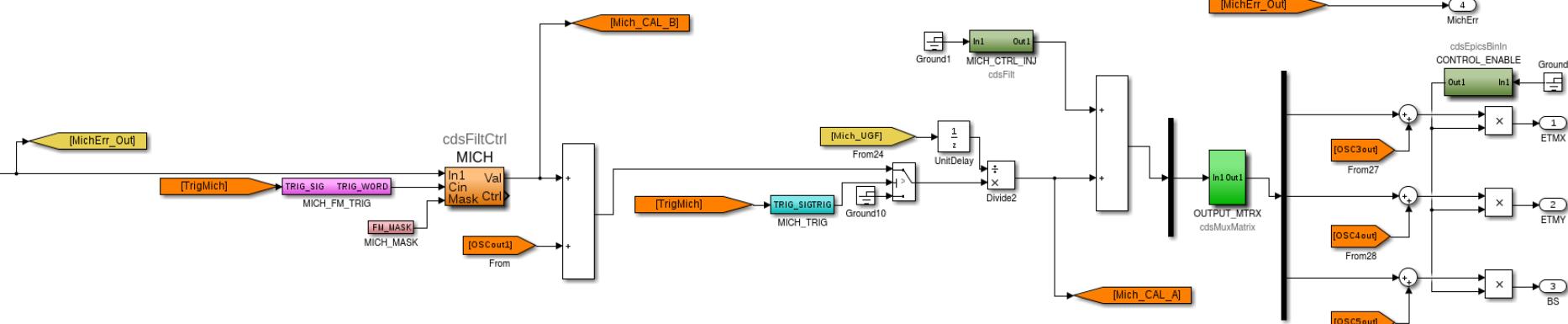
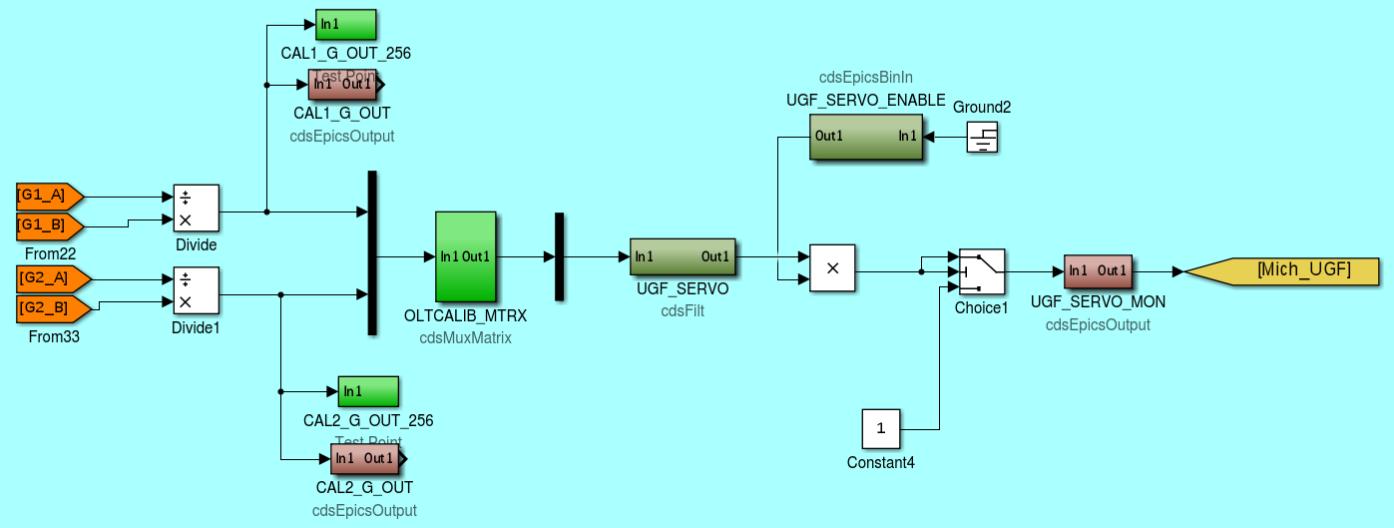
- [JGW-T1605101](#)  
Summary of iKAGRA Test Run March 2016
- [JGW-T1605177](#)  
Summary of iKAGRA Test Run April 2016
- [MICH Calibration](#) (by Yoichi Aso)
- [Post Run MICH Calibration](#) (by Yoichi Aso)

# Calibration Model

## iKAGRA LENGTH SENSING AND CONTROL



# UGF SERVO



## MICH LOCK Discrimination for GRD

