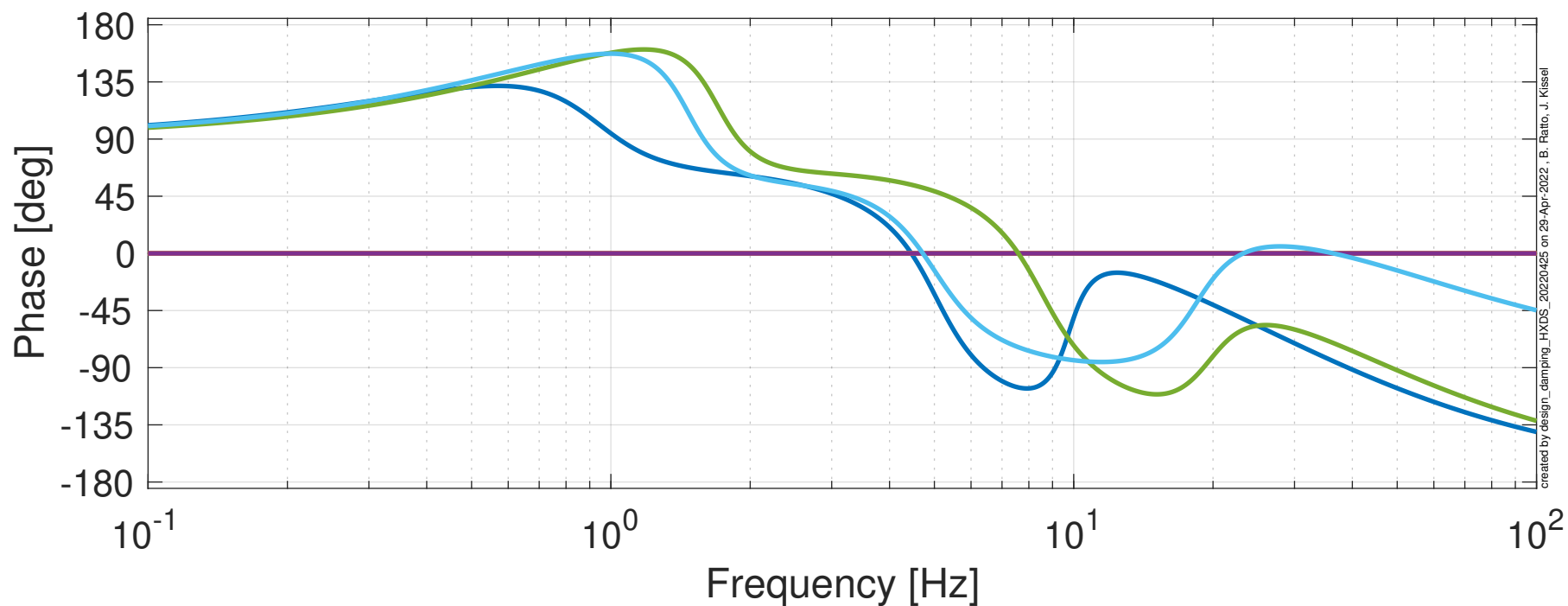
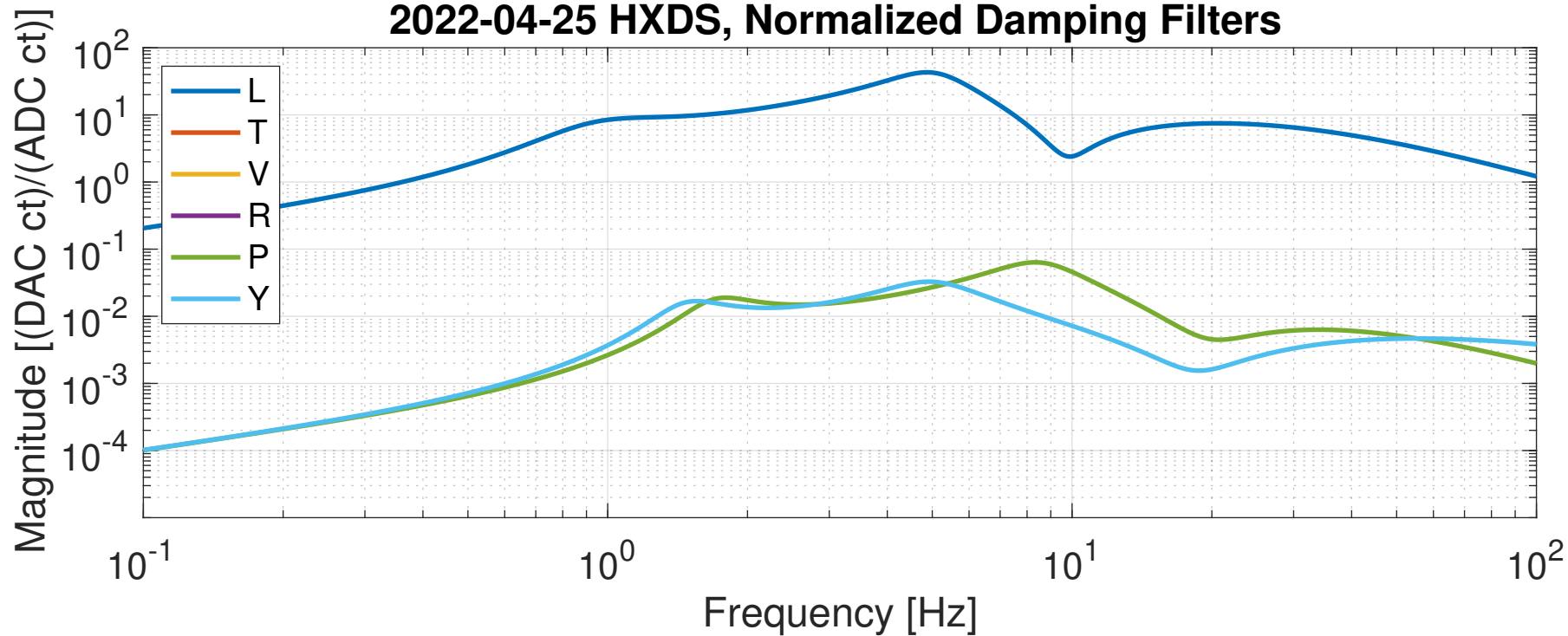
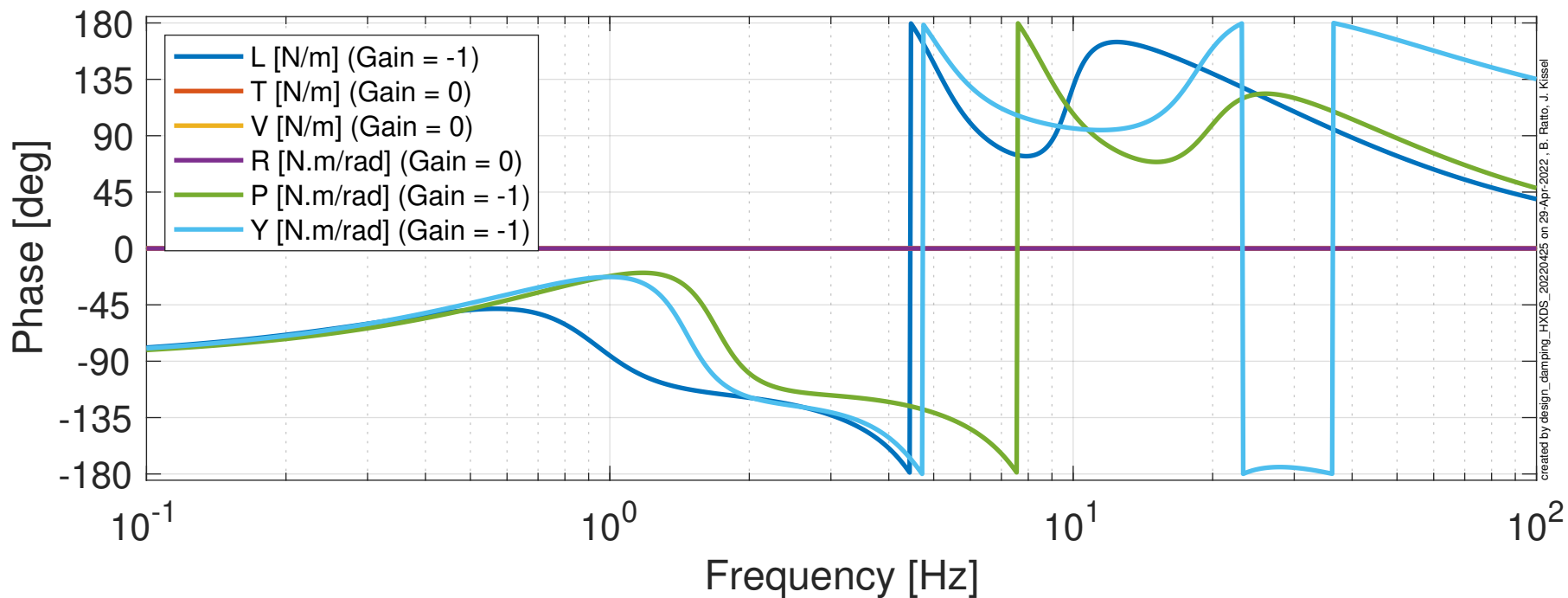
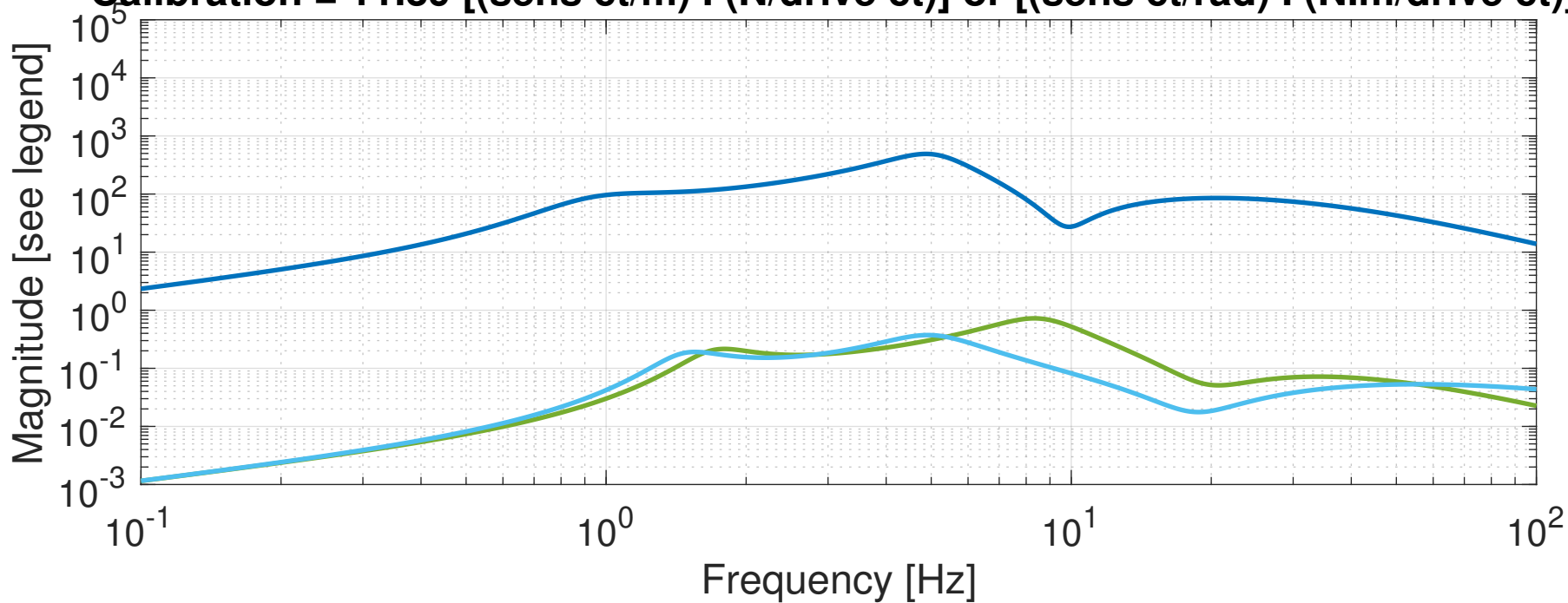


# 2022-04-25 HXDS, Normalized Damping Filters



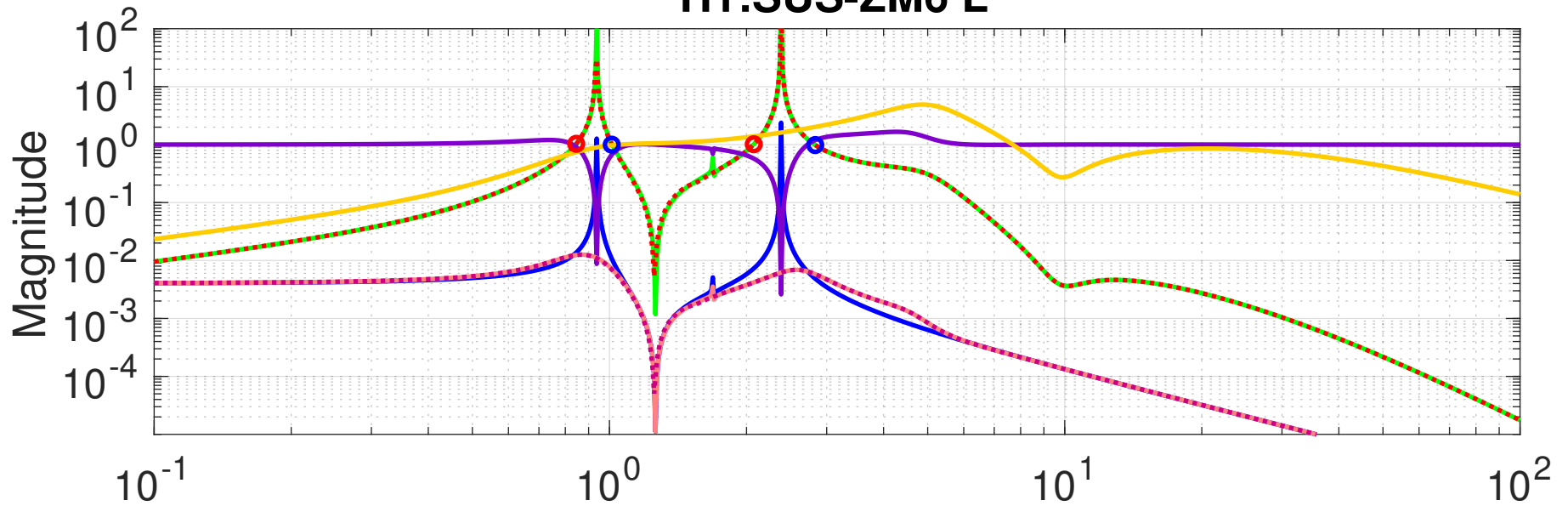
# 2022-04-25 HXDS, Calibrated Damping Filters

Calibration = 11.39 [(sens ct/m) . (N/drive ct)] or [(sens ct/rad) . (N.m/drive ct)]

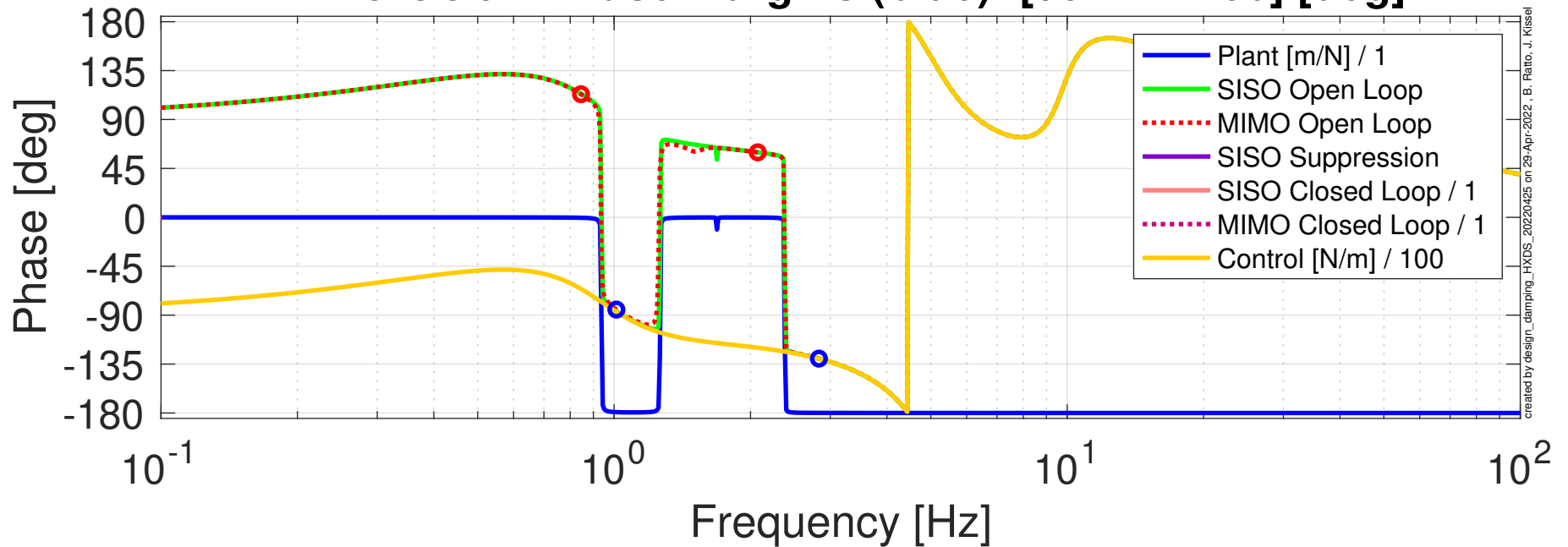


# Damping Loop Design

## H1:SUS-ZM6 L

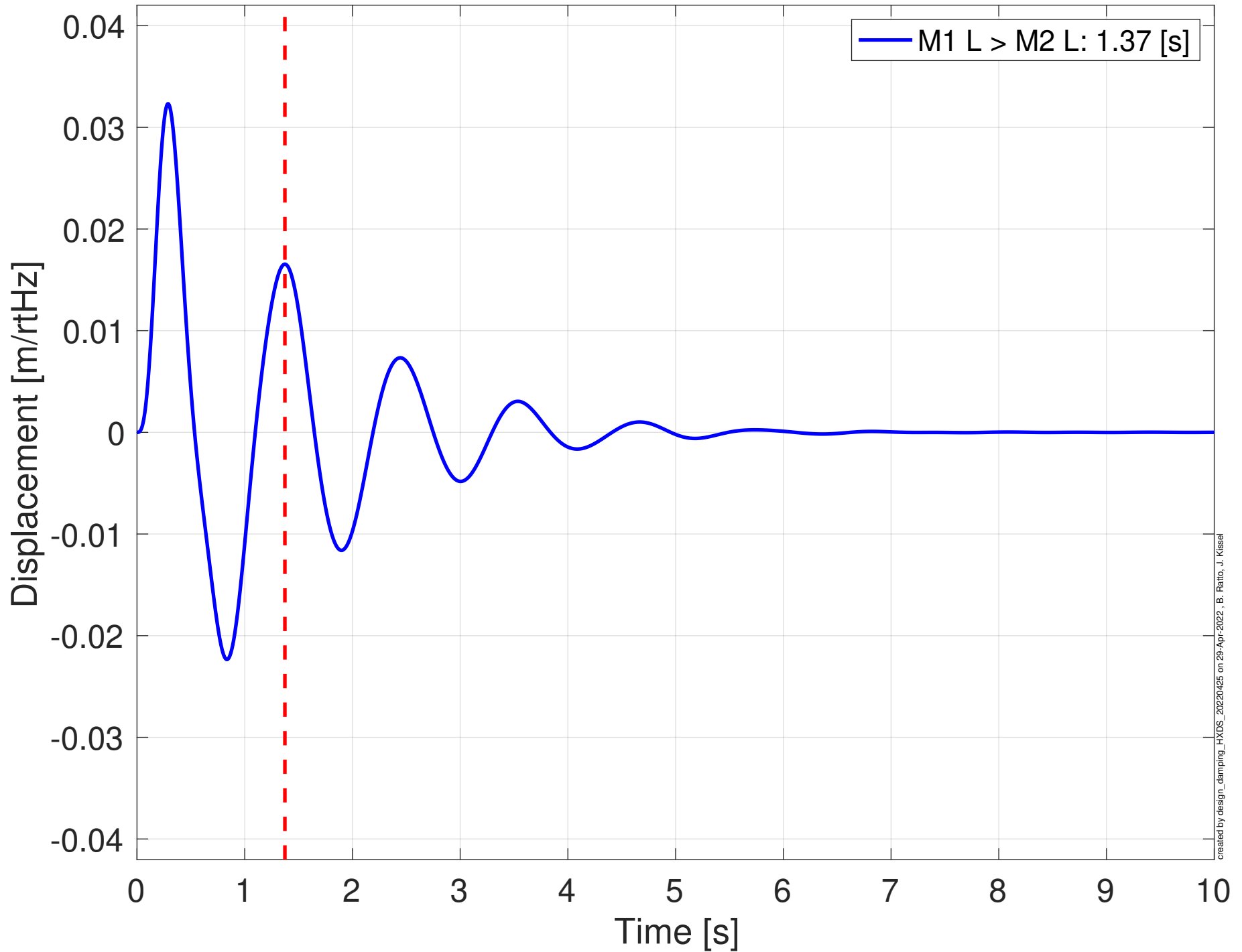


**MIMO LUGF Phase Margins (red): [66.7 120] [deg]**  
**MIMO UUGF Phase Margins (blue): [95.2 50] [deg]**

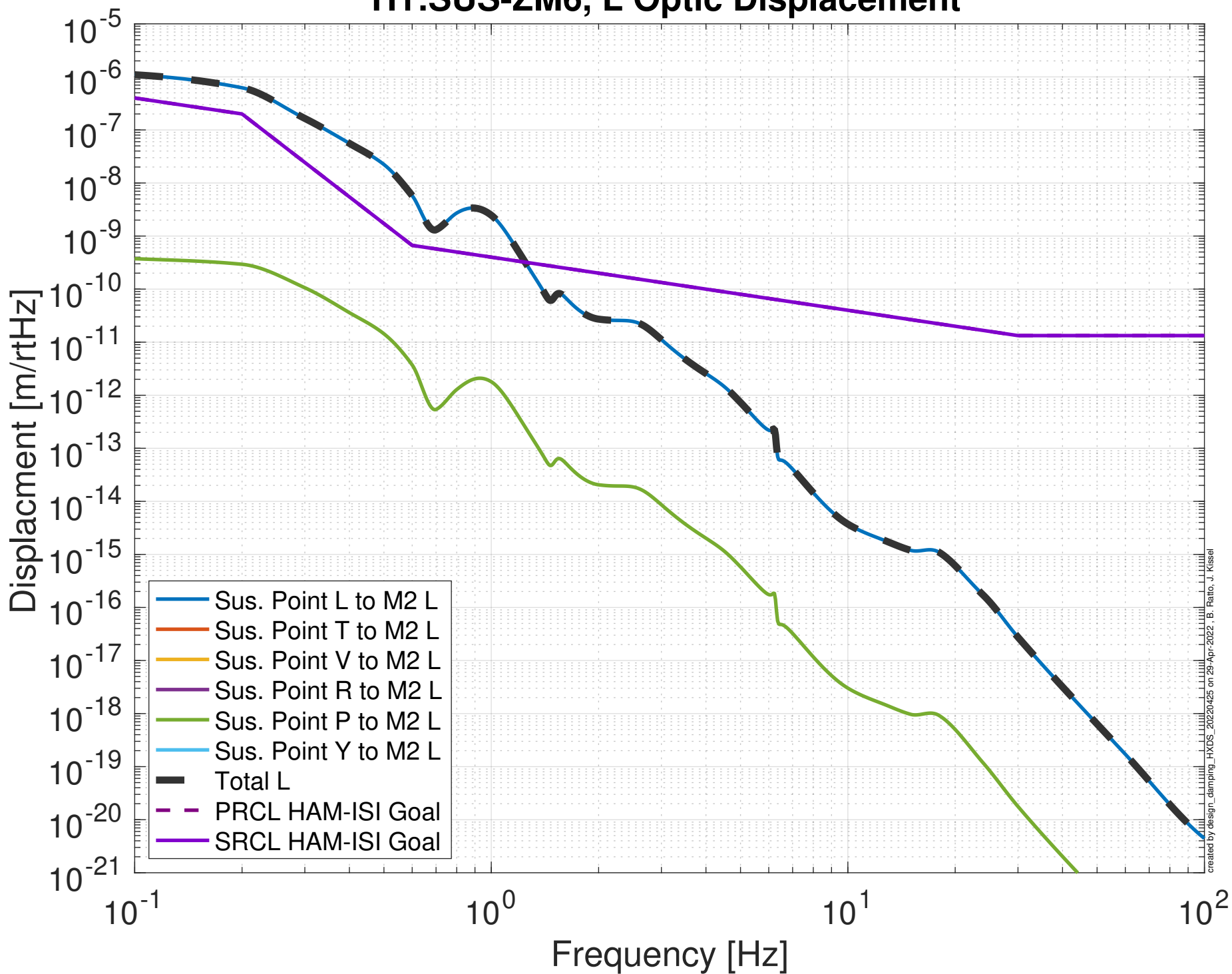


# Damped Impulse Response

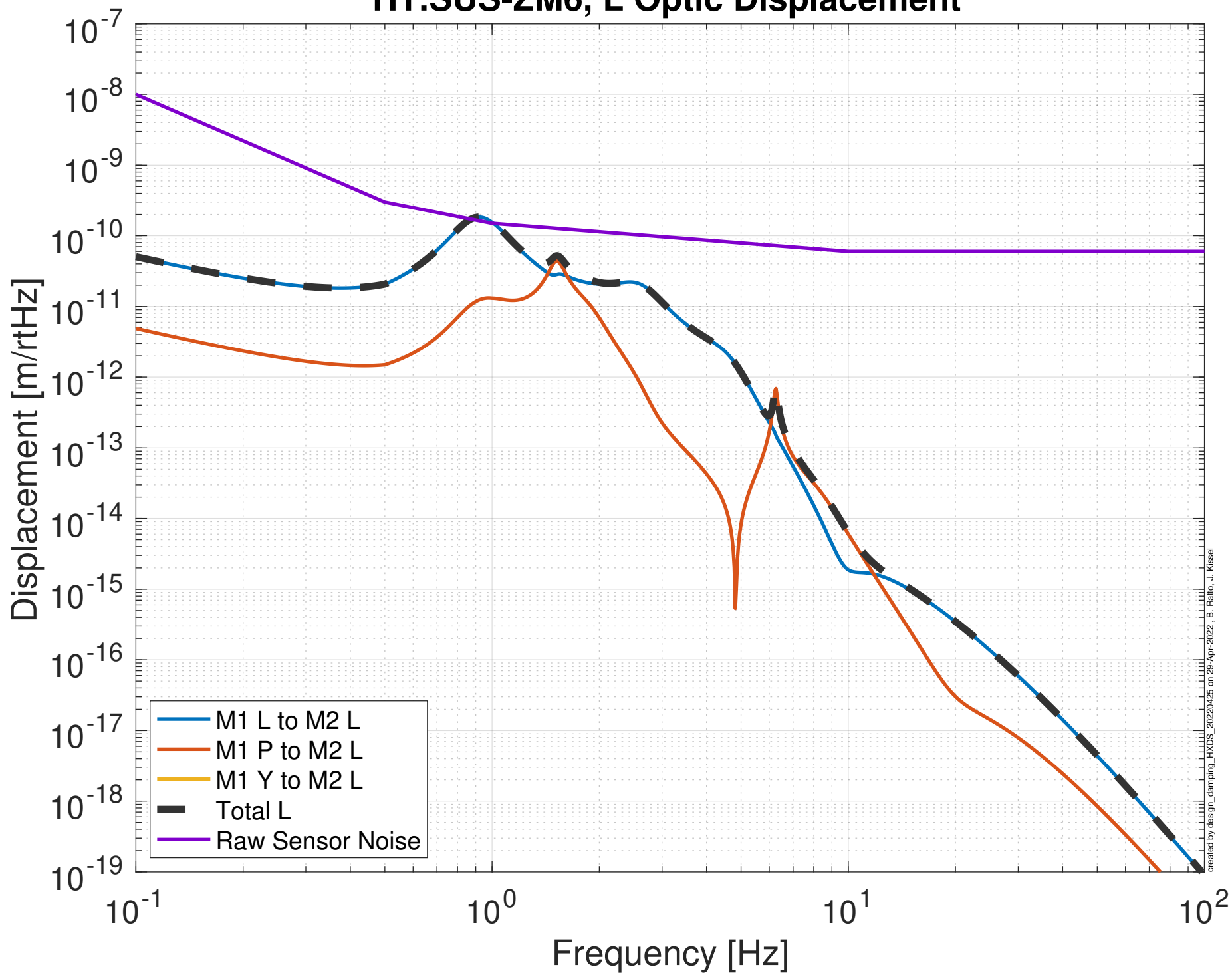
## H1:SUS-ZM6 L



# Projected Sus. Point > Optic Seismic Noise Budget H1:SUS-ZM6, L Optic Displacement

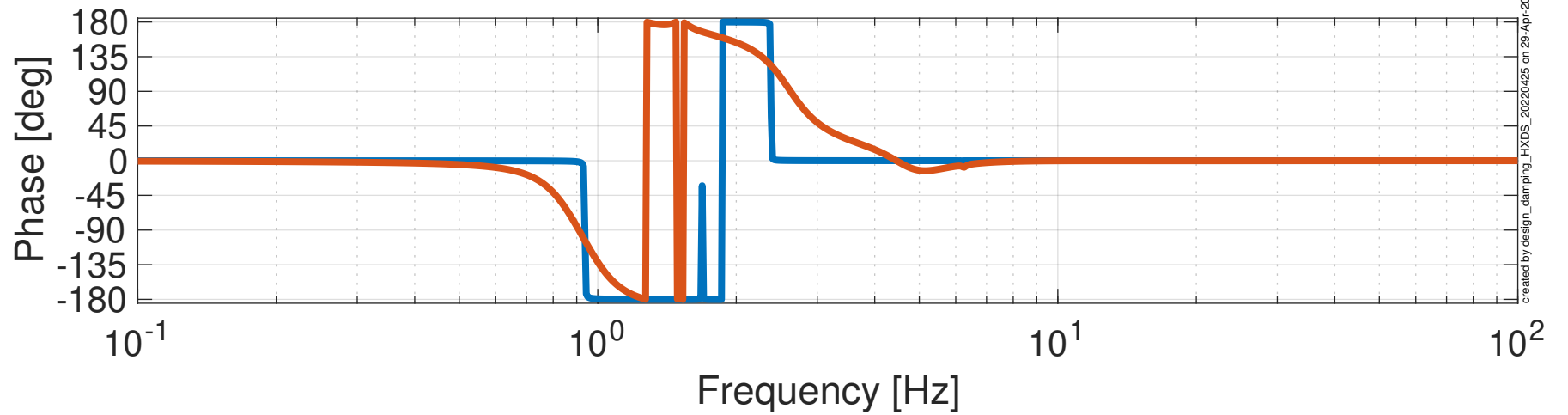
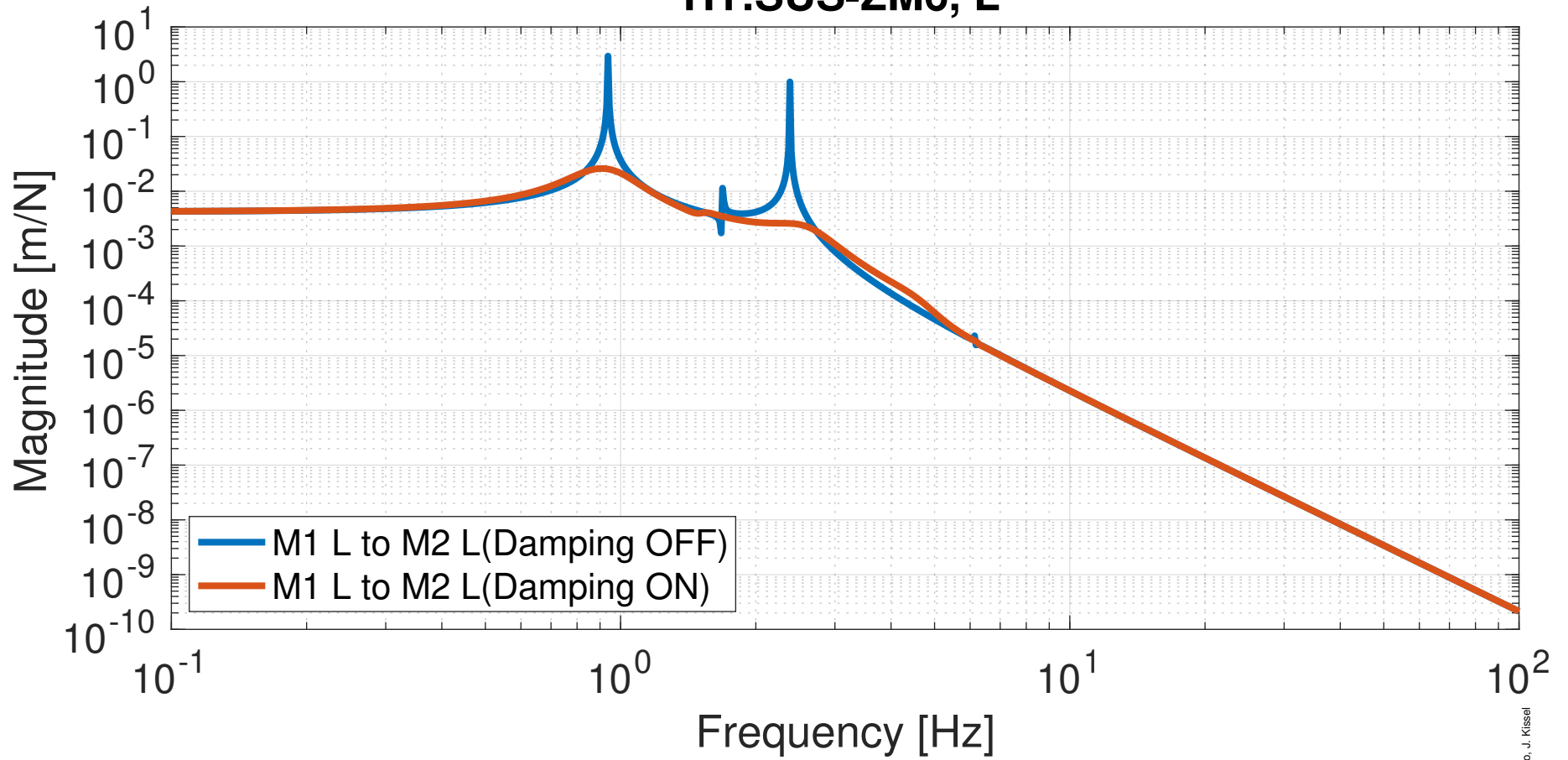


# Projected Top Mass Sensor > Optic Noise Budget H1:SUS-ZM6, L Optic Displacement

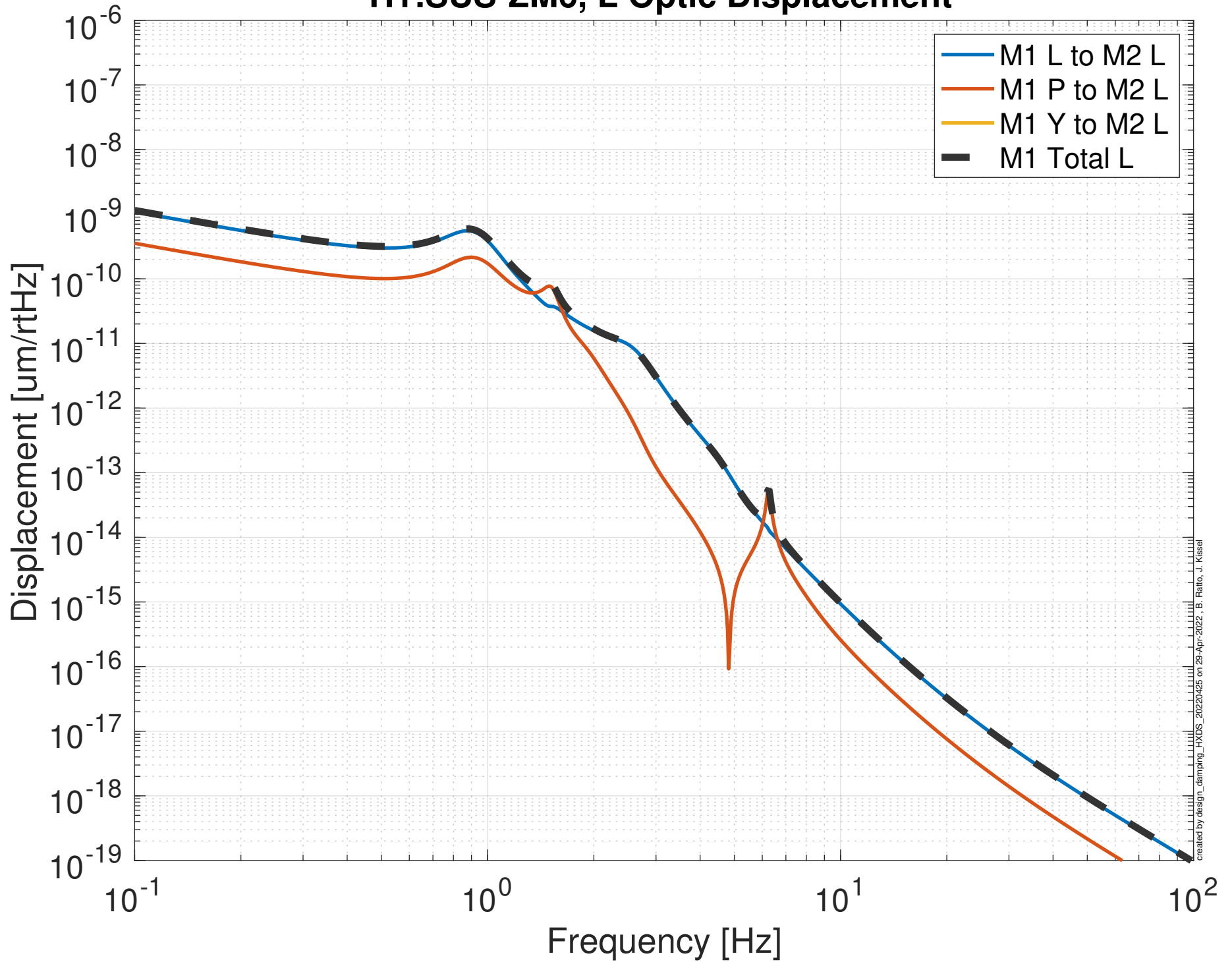


# Global Control Transfer Functions to Optic

## H1:SUS-ZM6, L



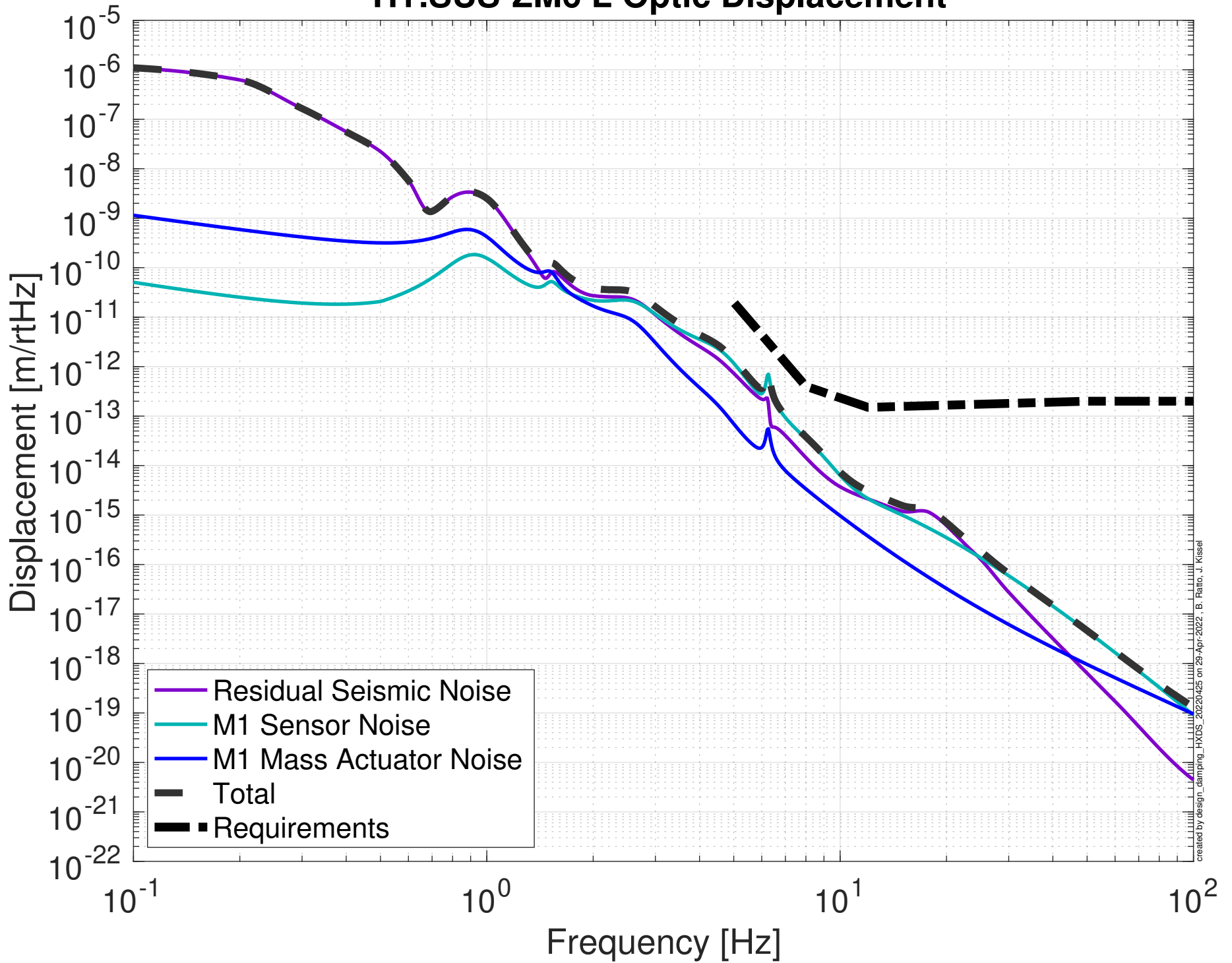
# Projected M1 Mass Actuator > Optic Noise Budget H1:SUS-ZM6, L Optic Displacement





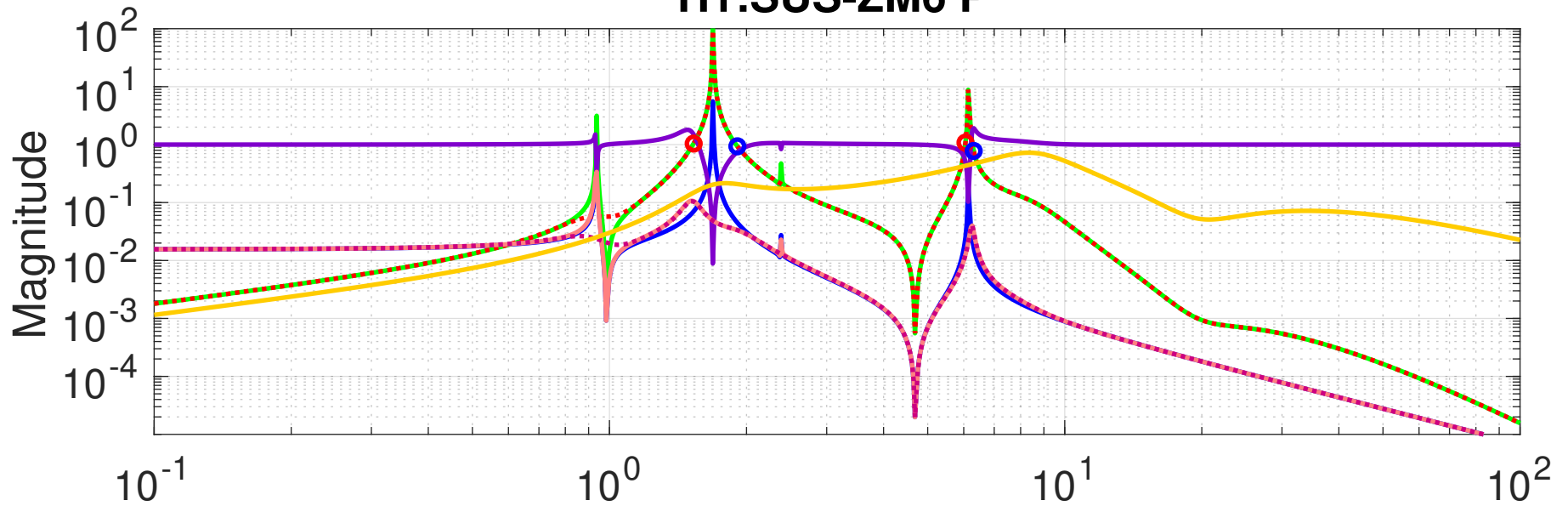
# Damping Loop Performance

## H1:SUS-ZM6 L Optic Displacement

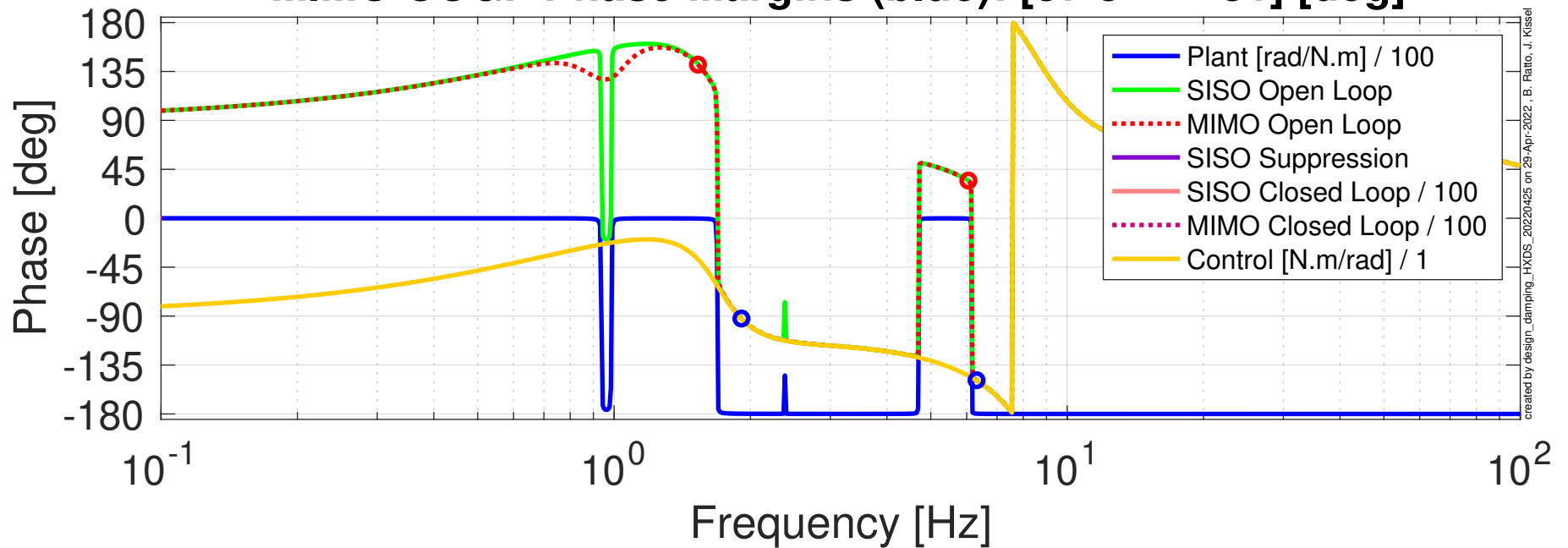


# Damping Loop Design

## H1:SUS-ZM6 P

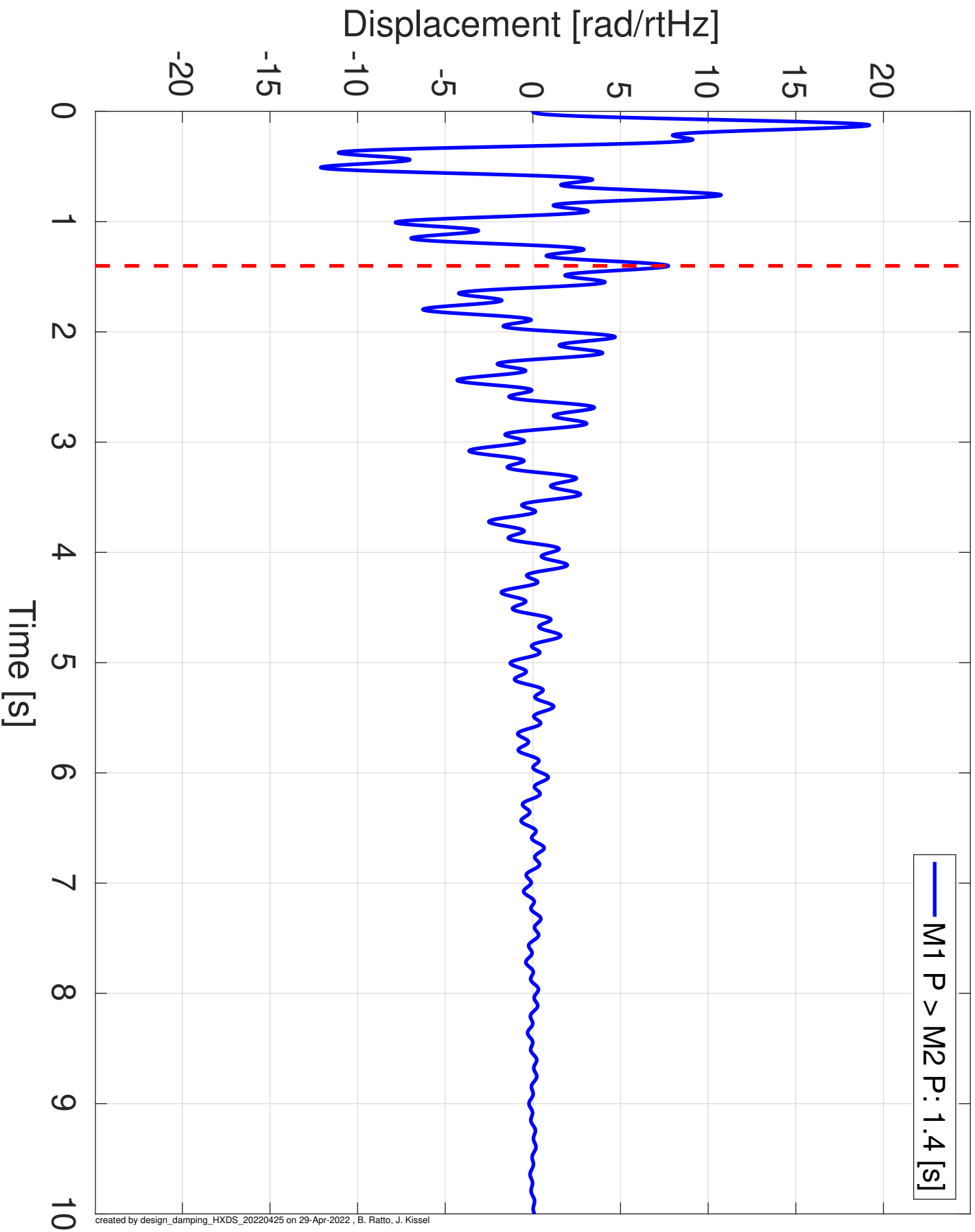


**MIMO LUGF Phase Margins (red): [38.7 145] [deg]**  
**MIMO UUGF Phase Margins (blue): [87.8 31] [deg]**

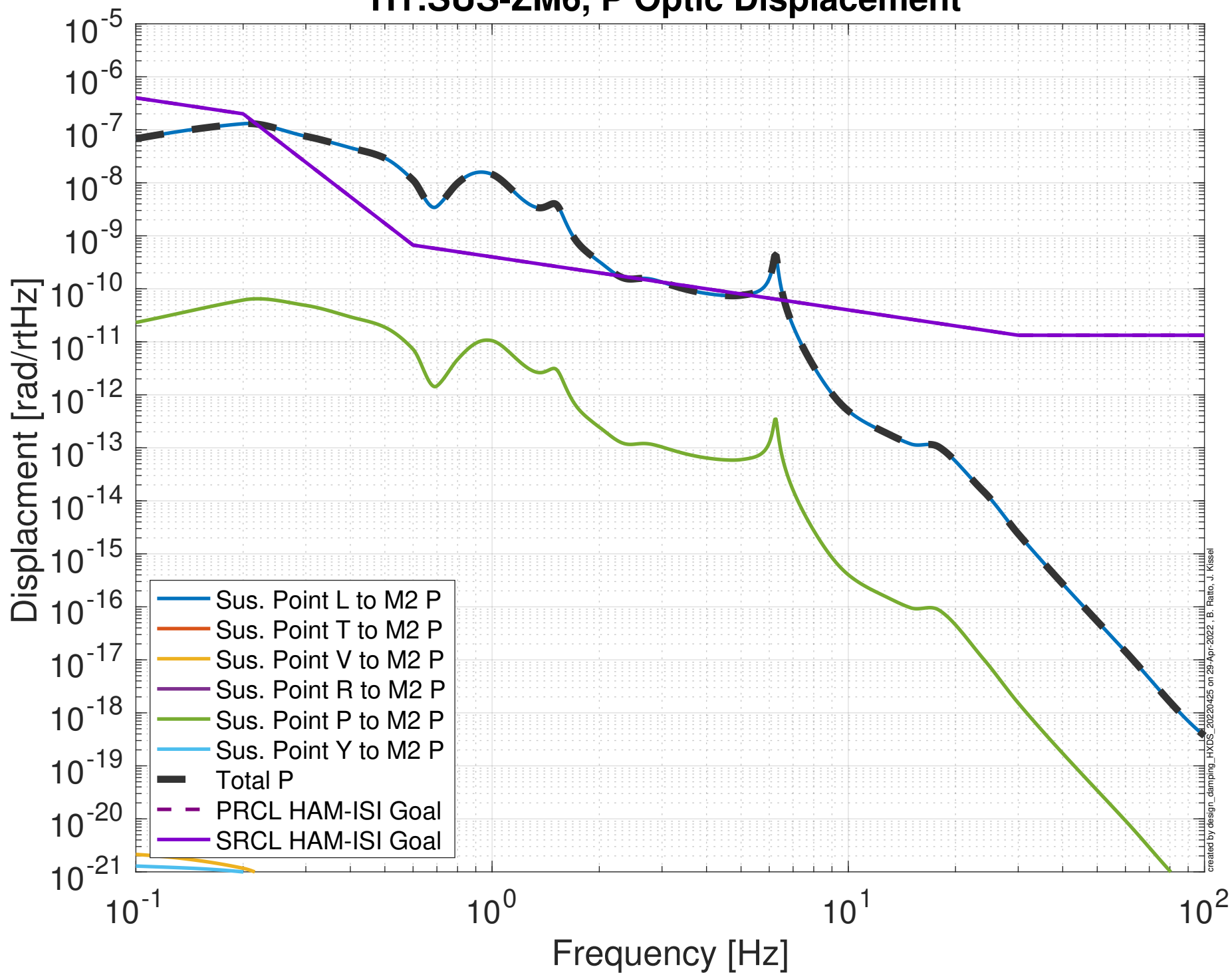


# Damped Impulse Response

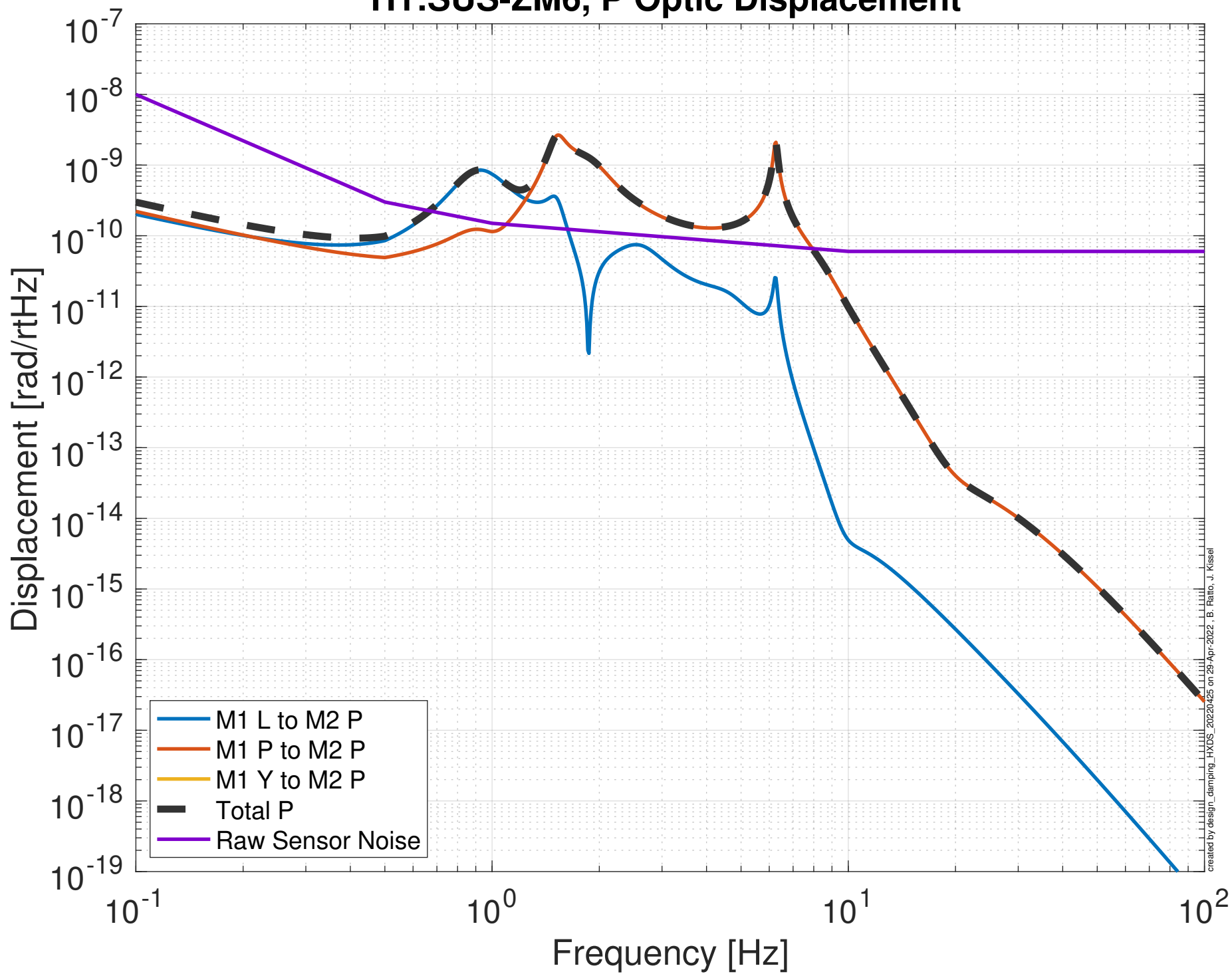
## H1:SUS-ZM6 P



# Projected Sus. Point > Optic Seismic Noise Budget H1:SUS-ZM6, P Optic Displacement

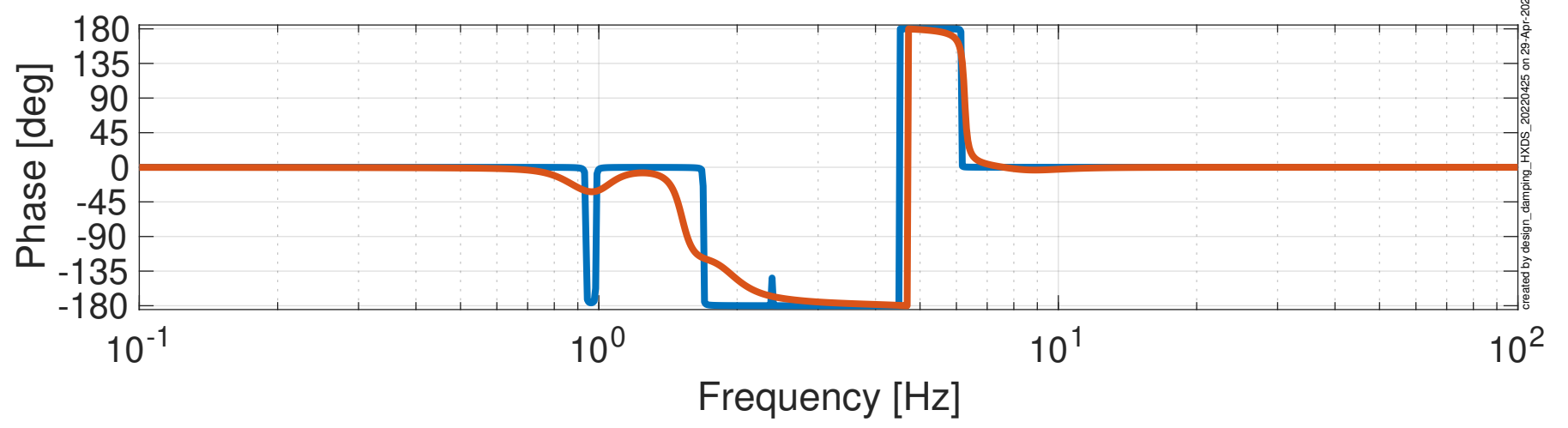
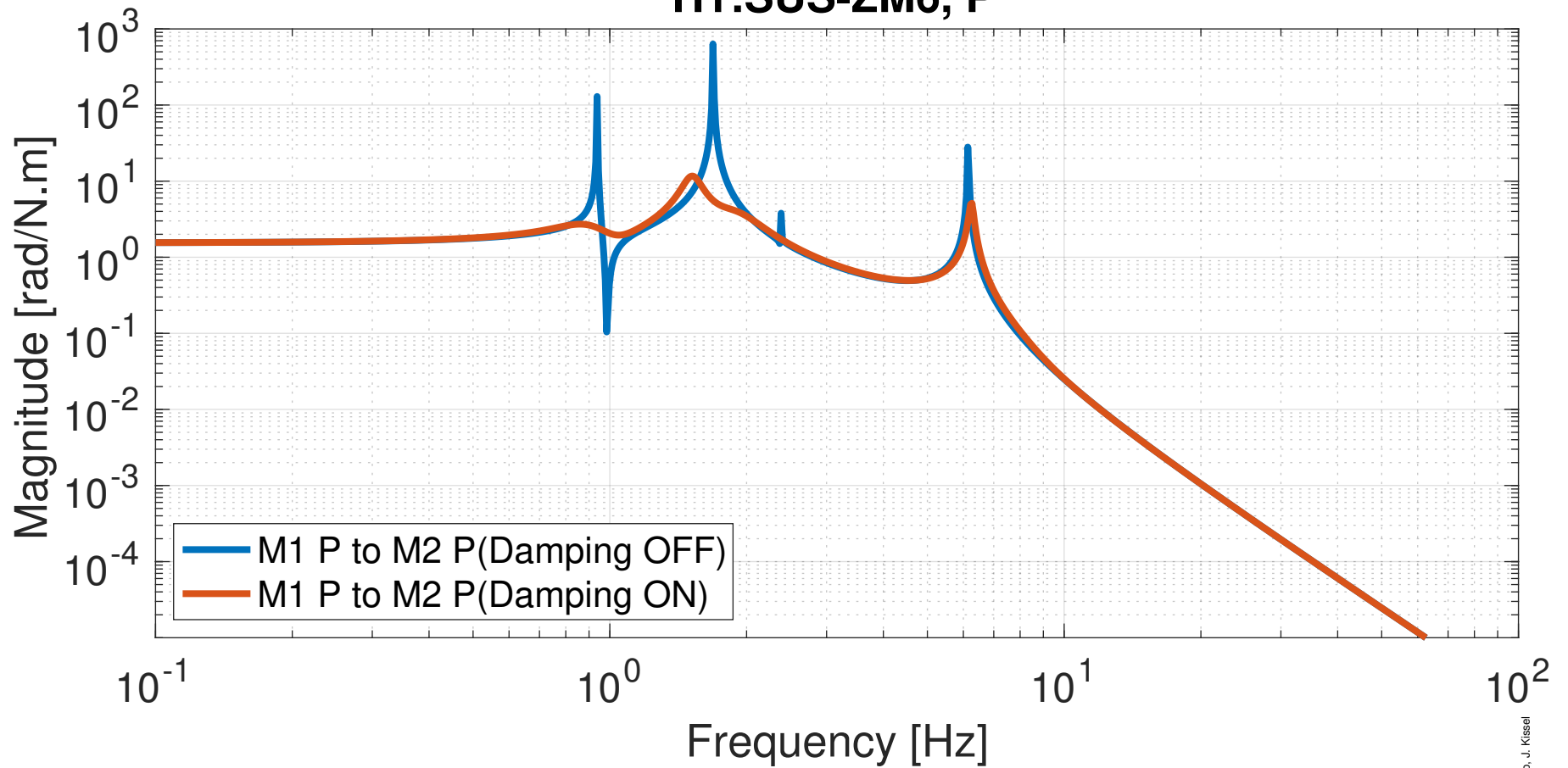


# Projected Top Mass Sensor > Optic Noise Budget H1:SUS-ZM6, P Optic Displacement

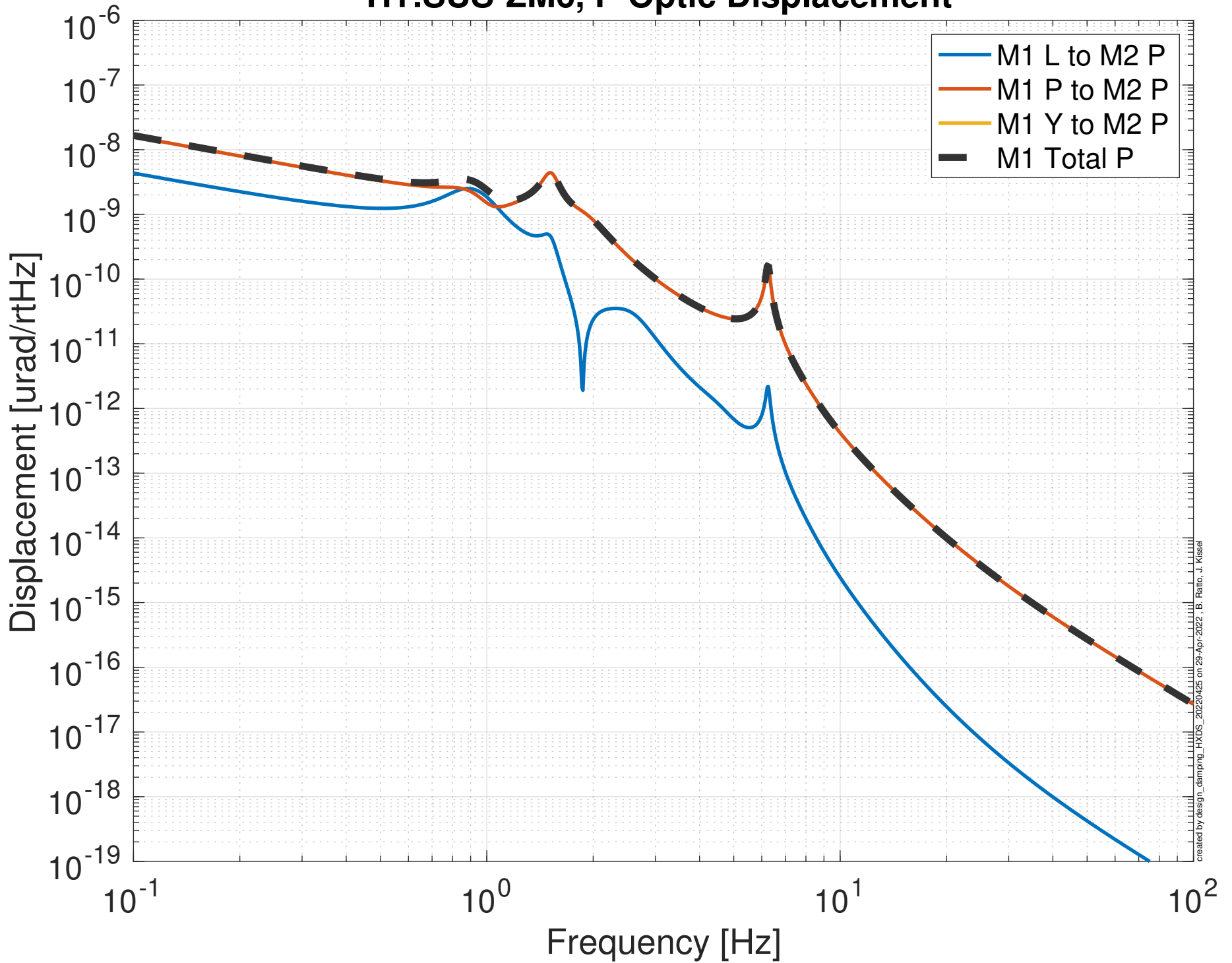


# Global Control Transfer Functions to Optic

## H1:SUS-ZM6, P

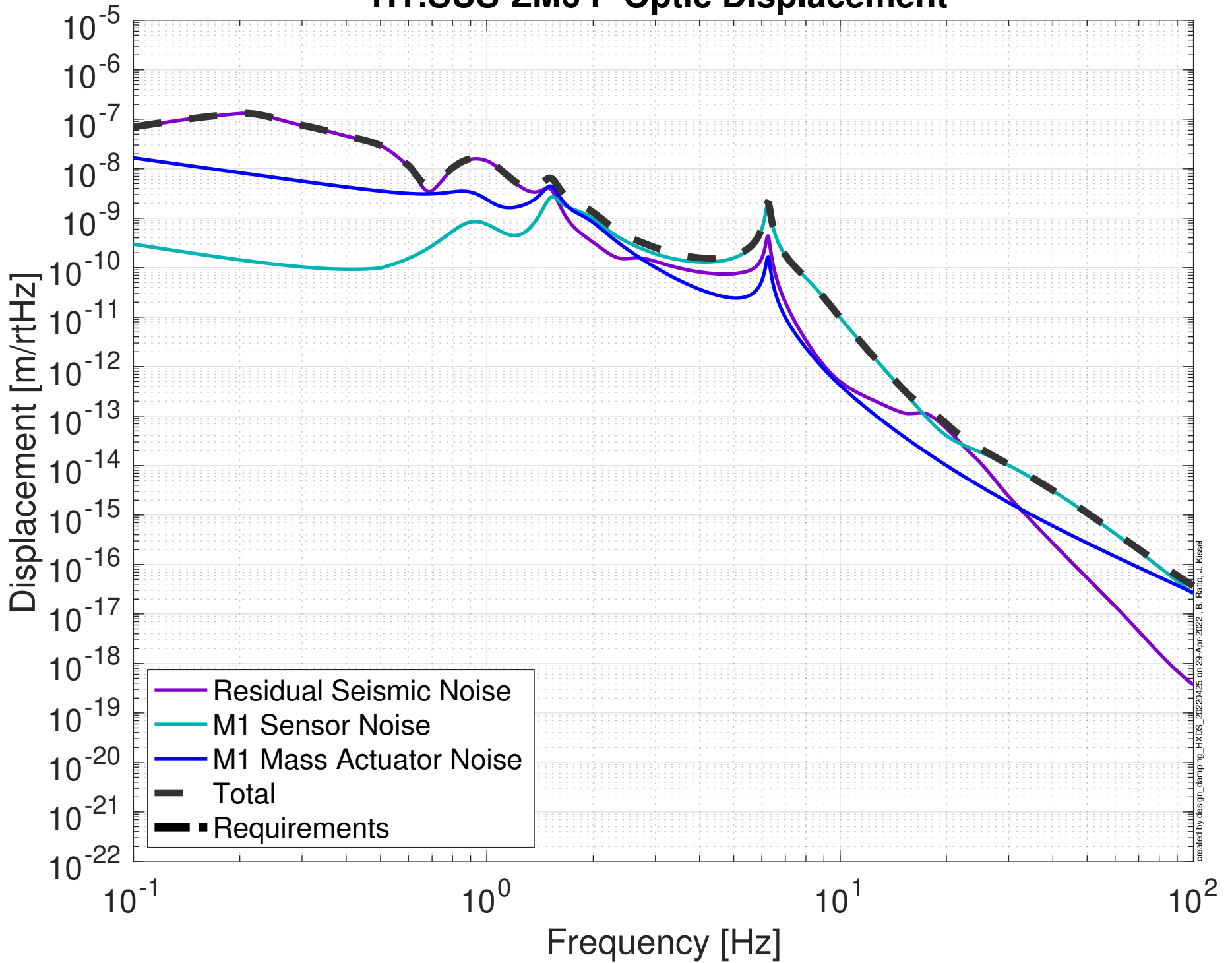


# Projected M1 Mass Actuator > Optic Noise Budget H1:SUS-ZM6, P Optic Displacement



# Damping Loop Performance

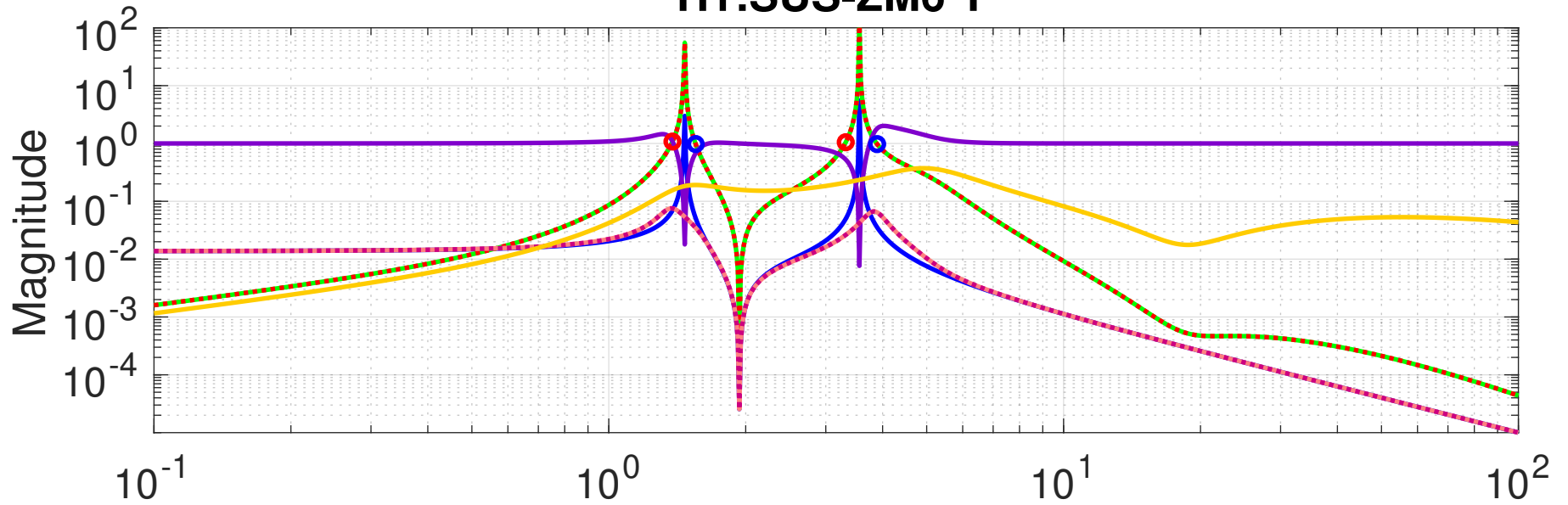
## H1:SUS-ZM6 P Optic Displacement





# Damping Loop Design

## H1:SUS-ZM6 Y

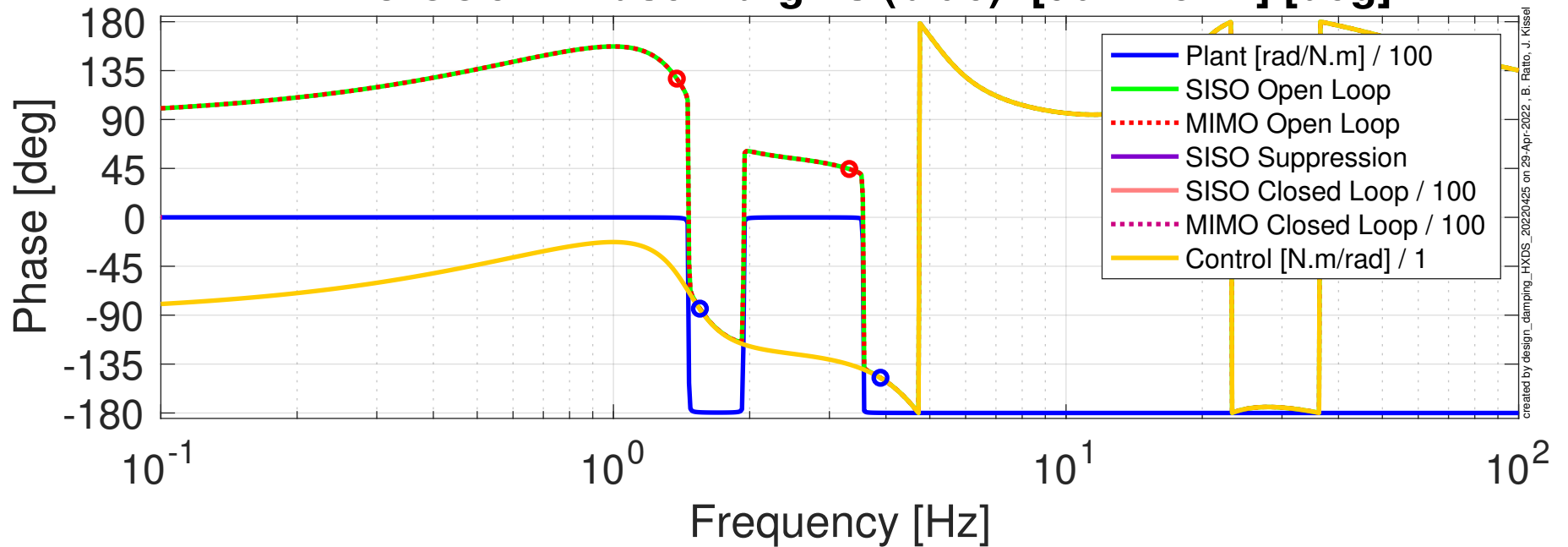


**MIMO LUGF Phase Margins (red): [52.4**

**136] [deg]**

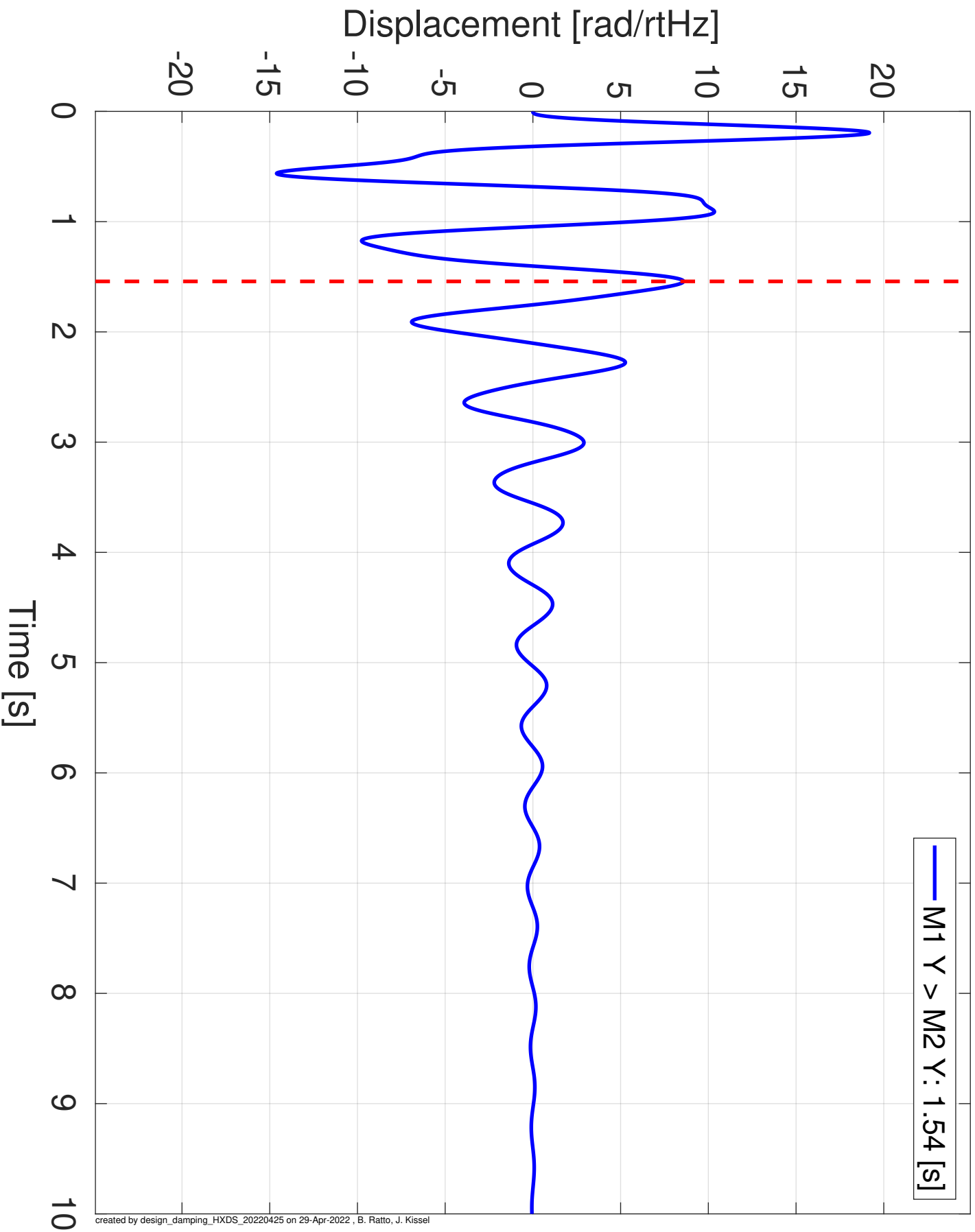
**MIMO UUGF Phase Margins (blue): [96**

**32.4] [deg]**

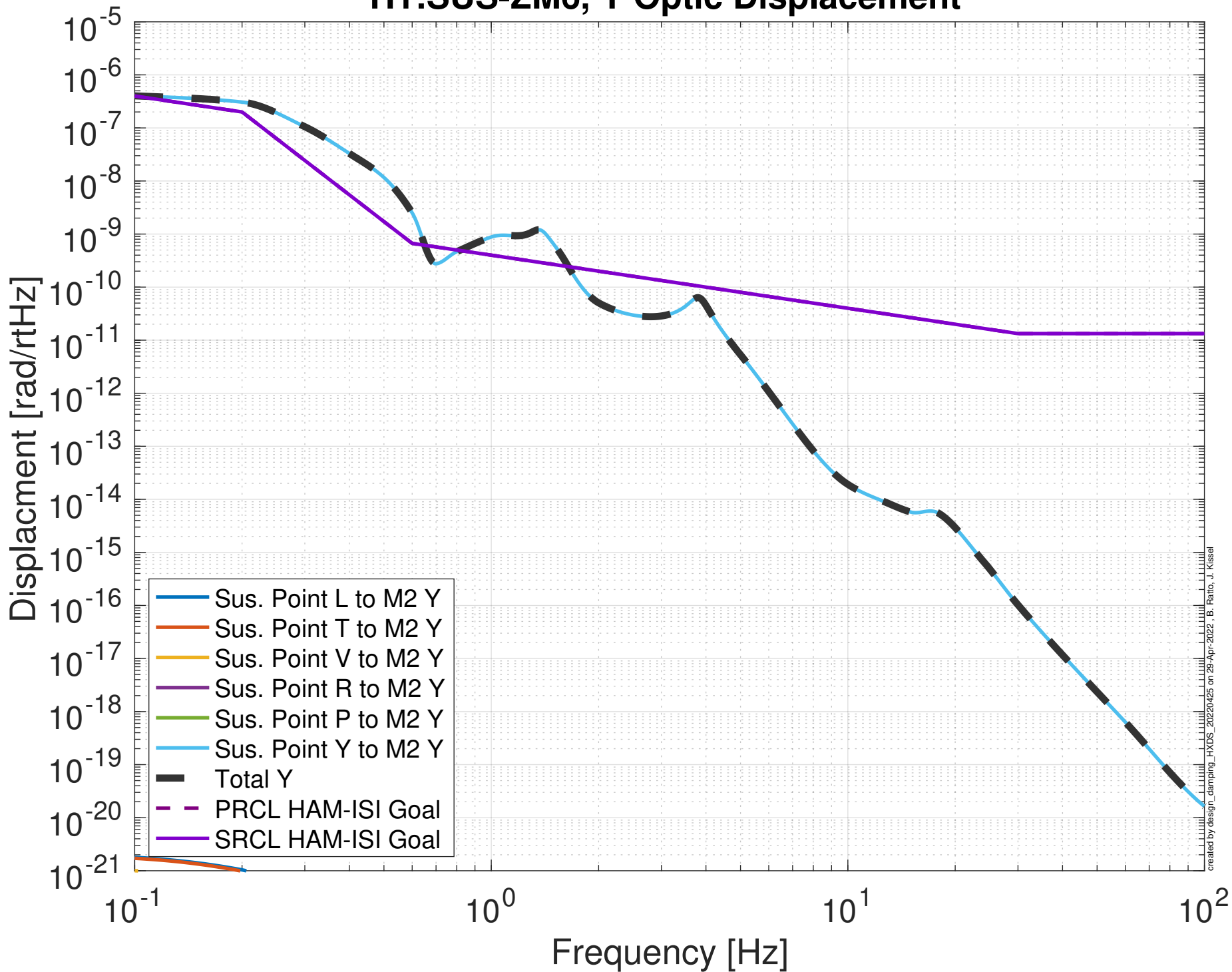


# Damped Impulse Response

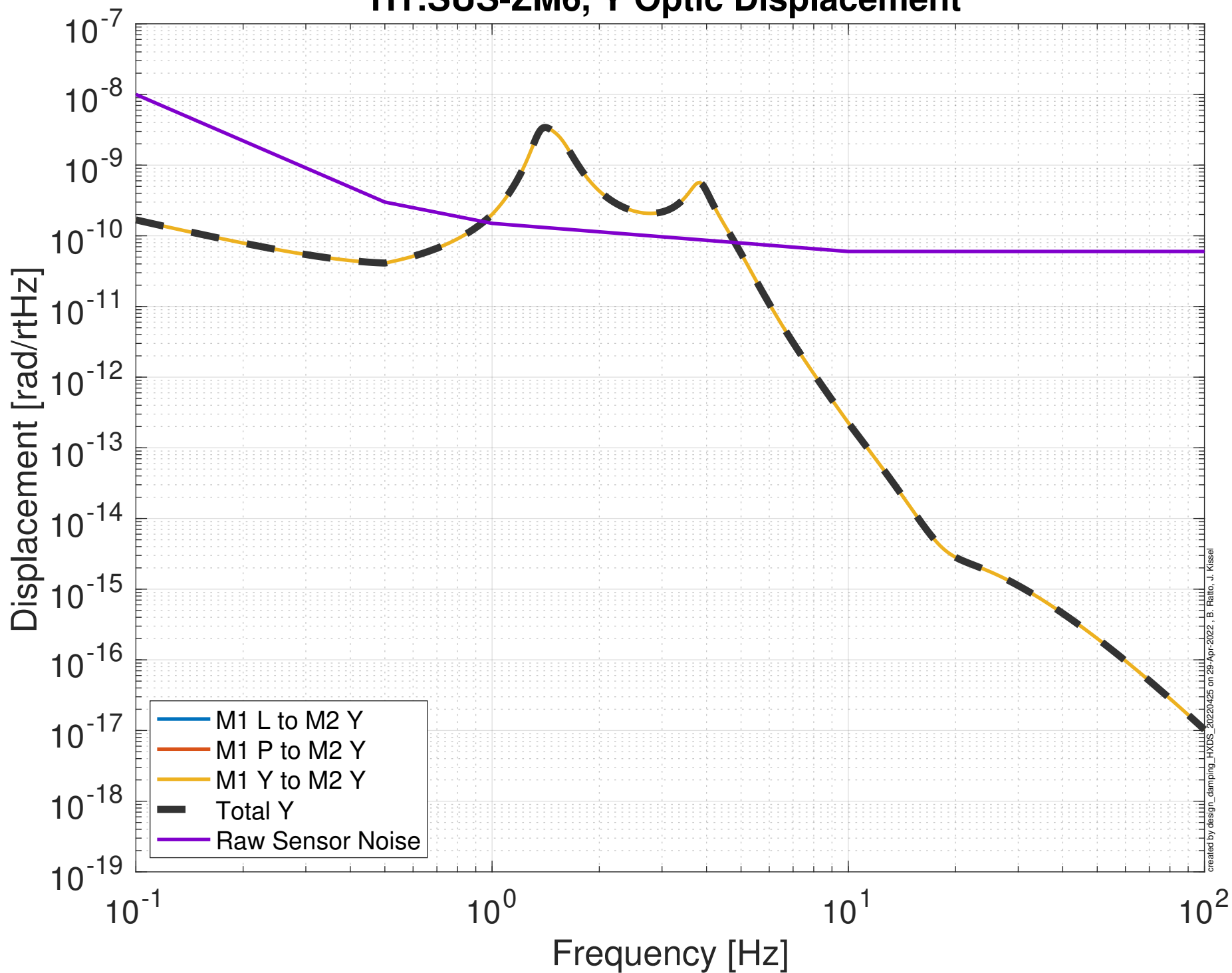
## H1:SUS-ZM6 Y



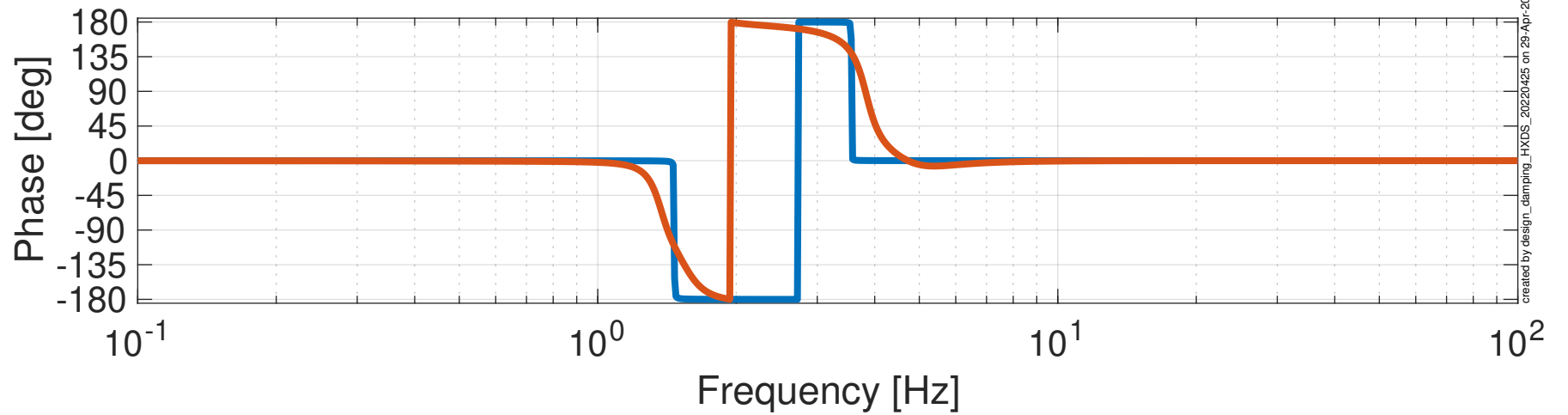
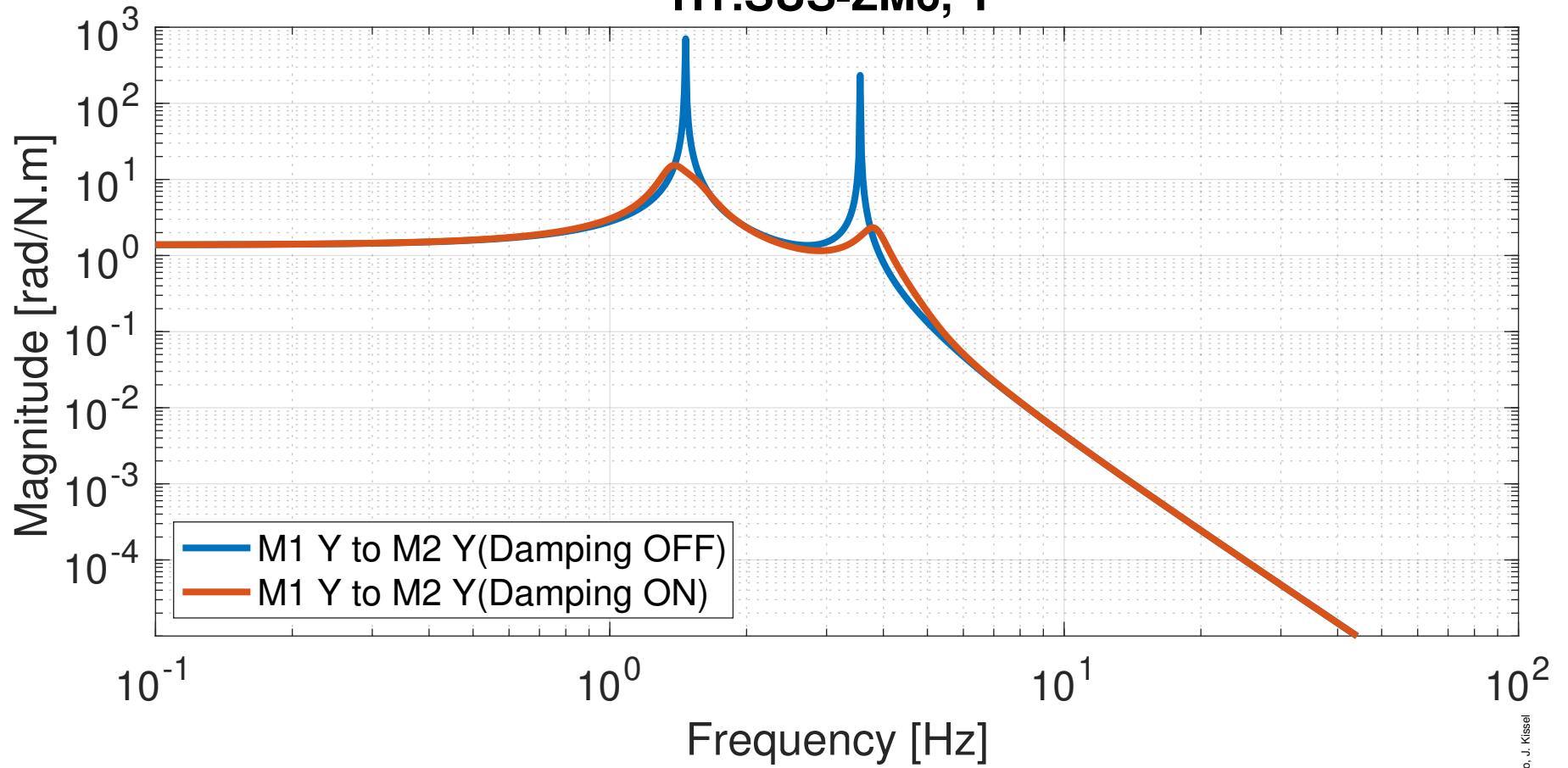
# Projected Sus. Point > Optic Seismic Noise Budget H1:SUS-ZM6, Y Optic Displacement



# Projected Top Mass Sensor > Optic Noise Budget H1:SUS-ZM6, Y Optic Displacement

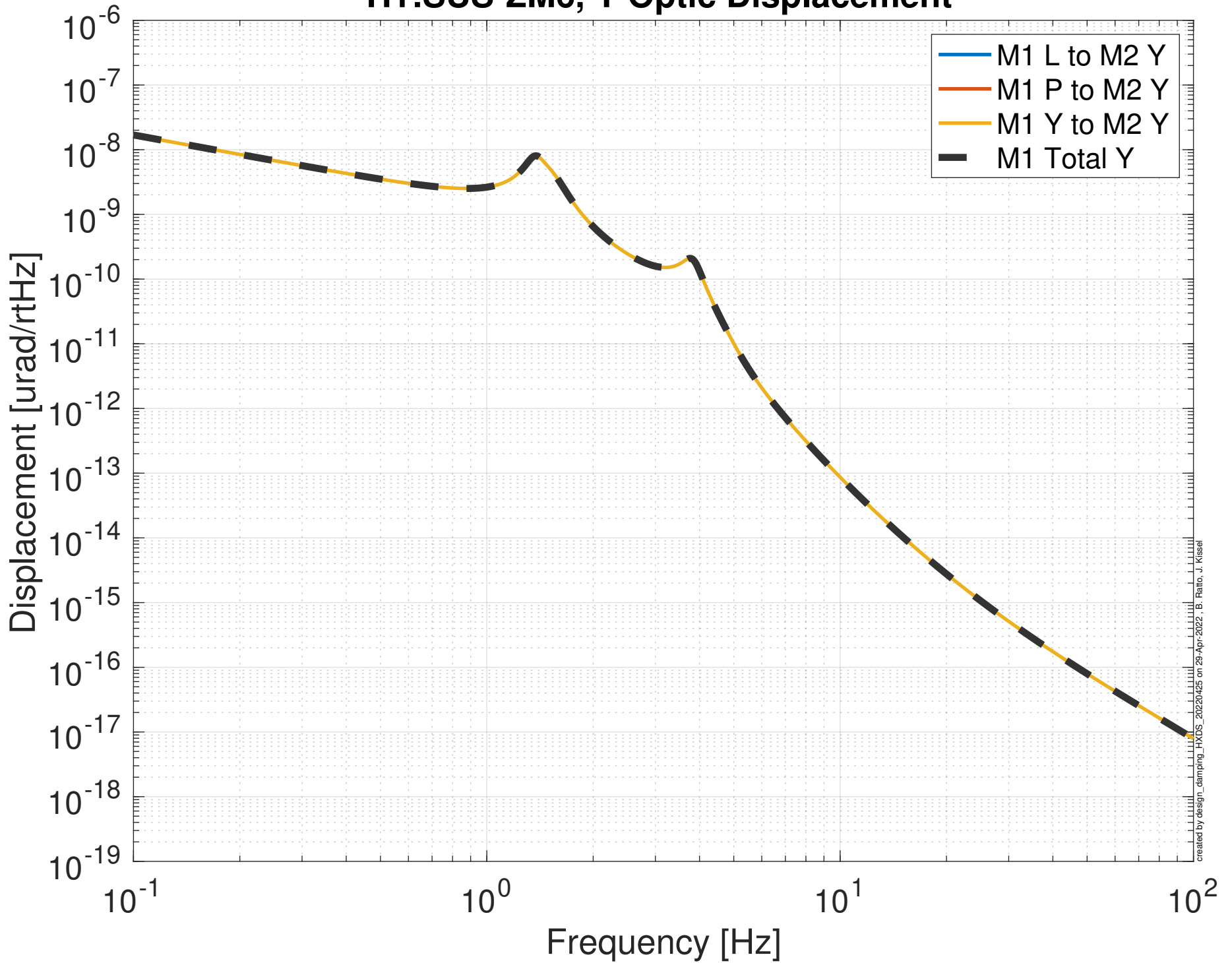


# Global Control Transfer Functions to Optic H1:SUS-ZM6, Y



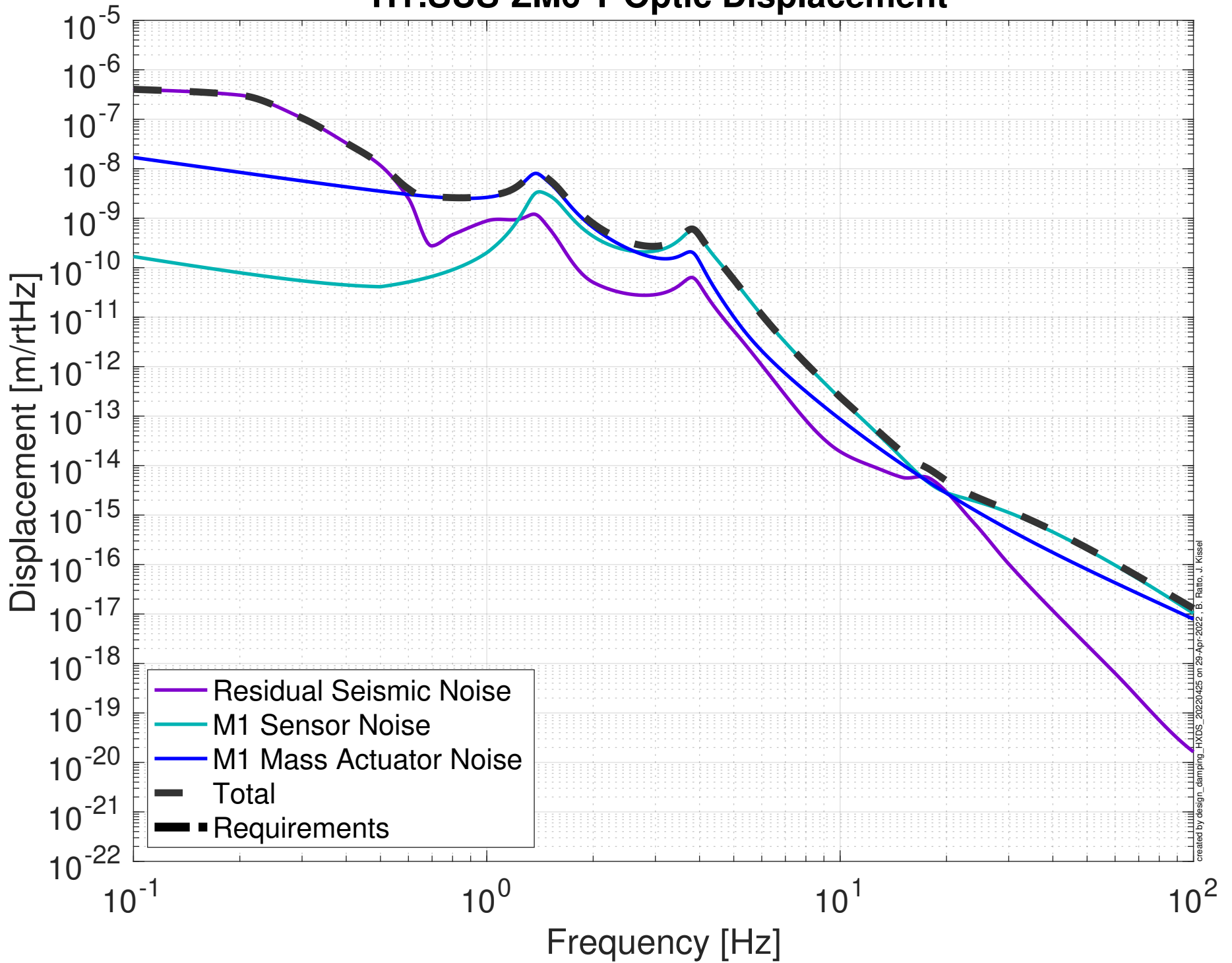
# Projected M1 Mass Actuator > Optic Noise Budget

## H1:SUS-ZM6, Y Optic Displacement



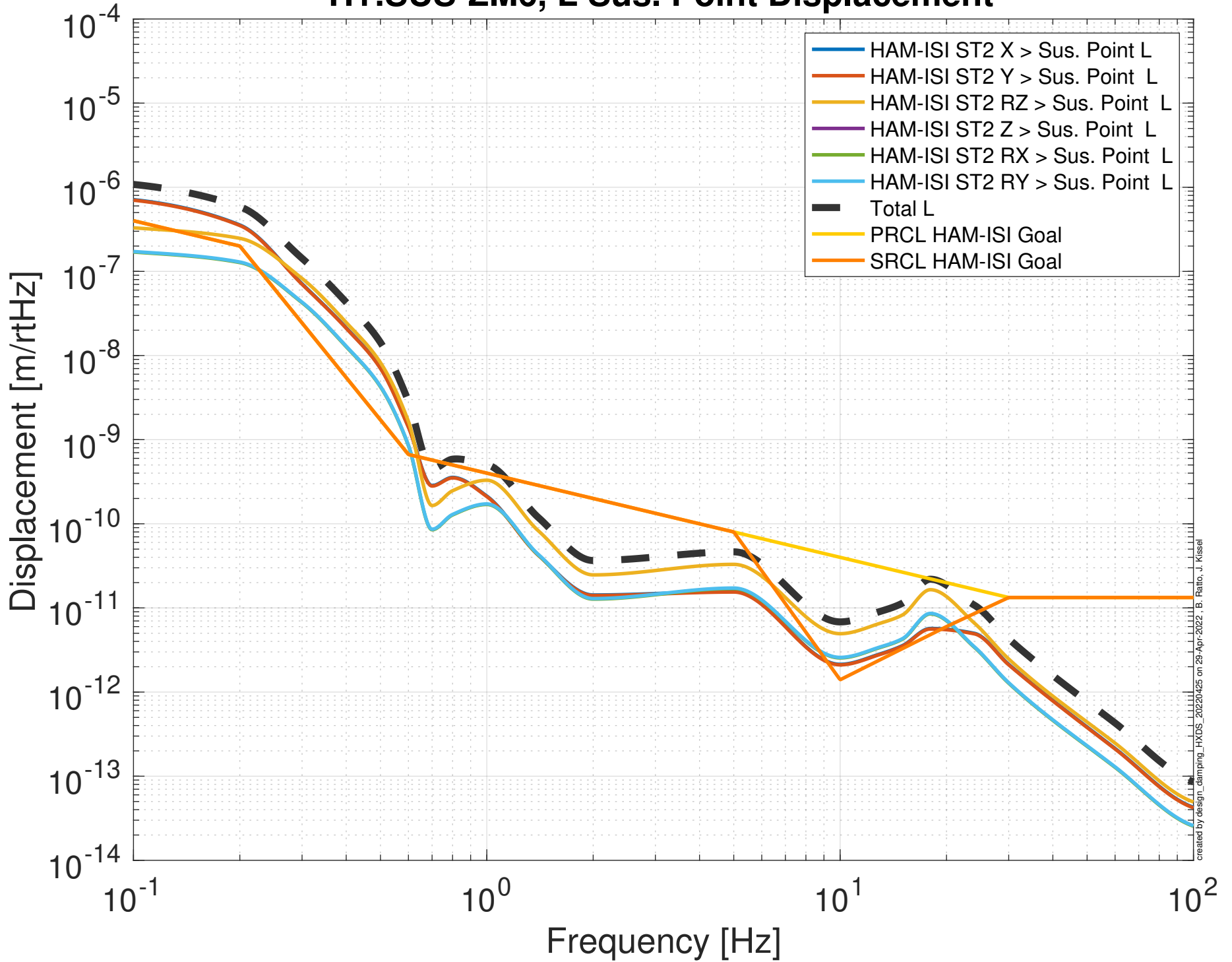
# Damping Loop Performance

## H1:SUS-ZM6 Y Optic Displacement



# Projected ISI Seismic Noise Budget

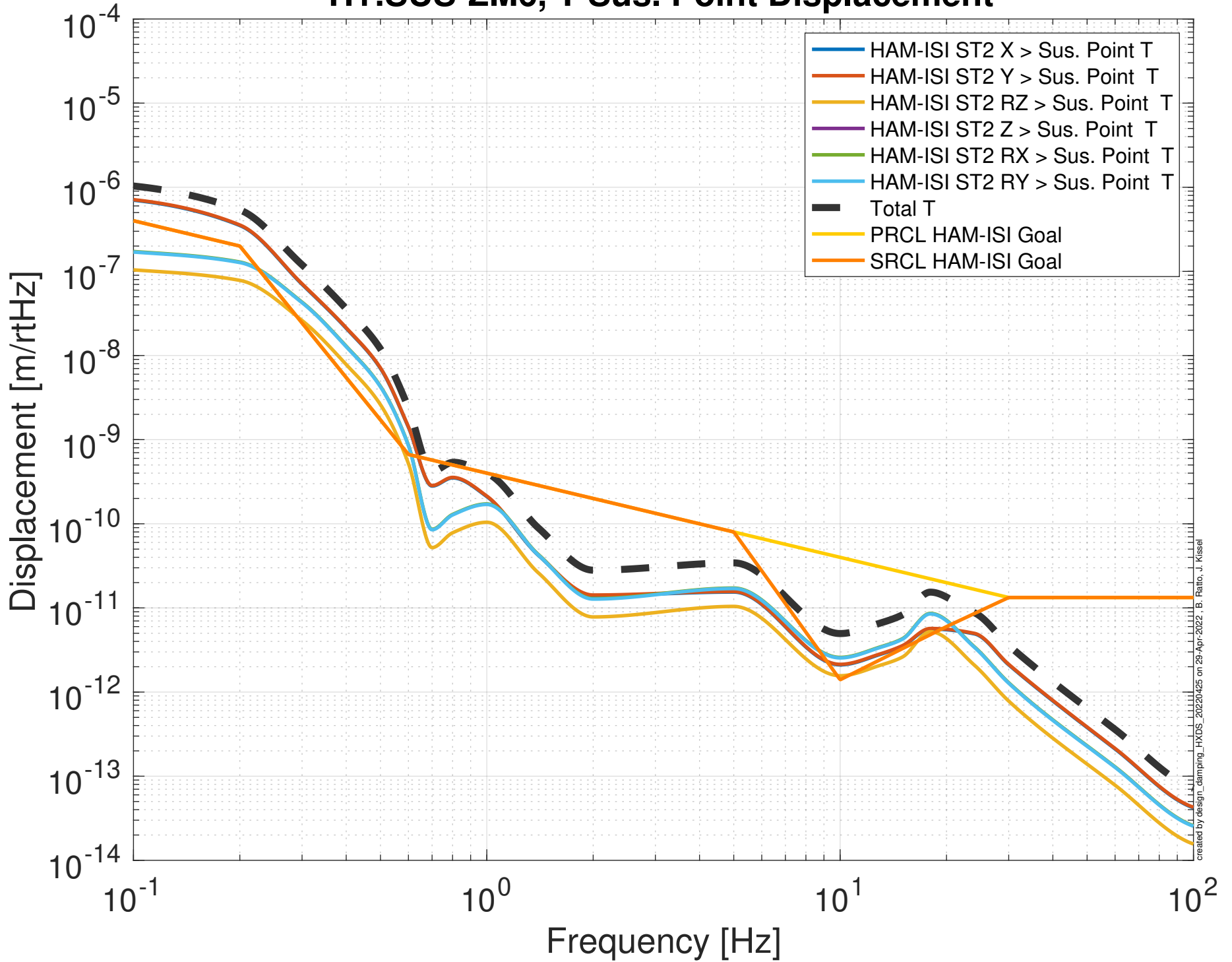
## H1:SUS-ZM6, L Sus. Point Displacement



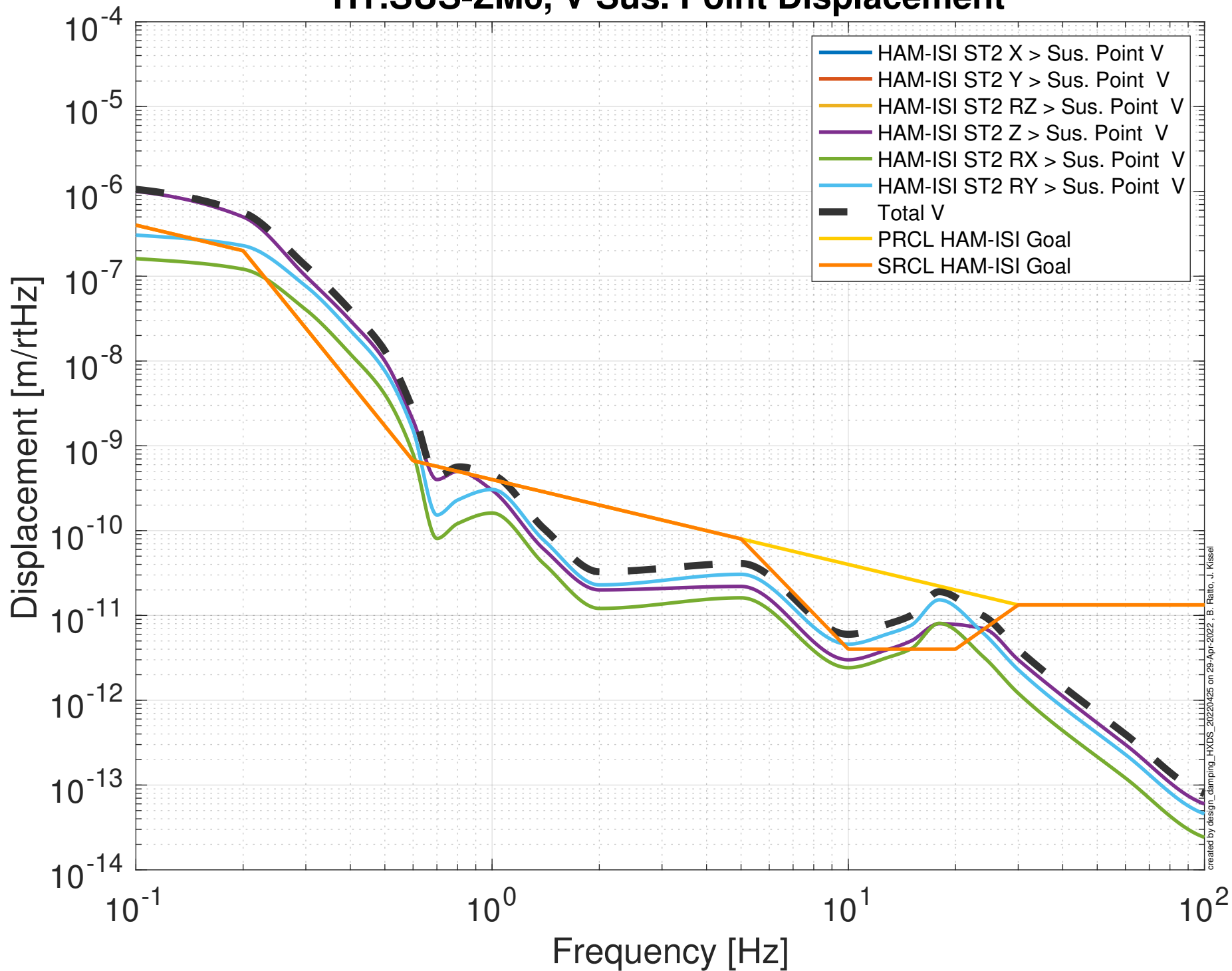


# Projected ISI Seismic Noise Budget

## H1:SUS-ZM6, T Sus. Point Displacement

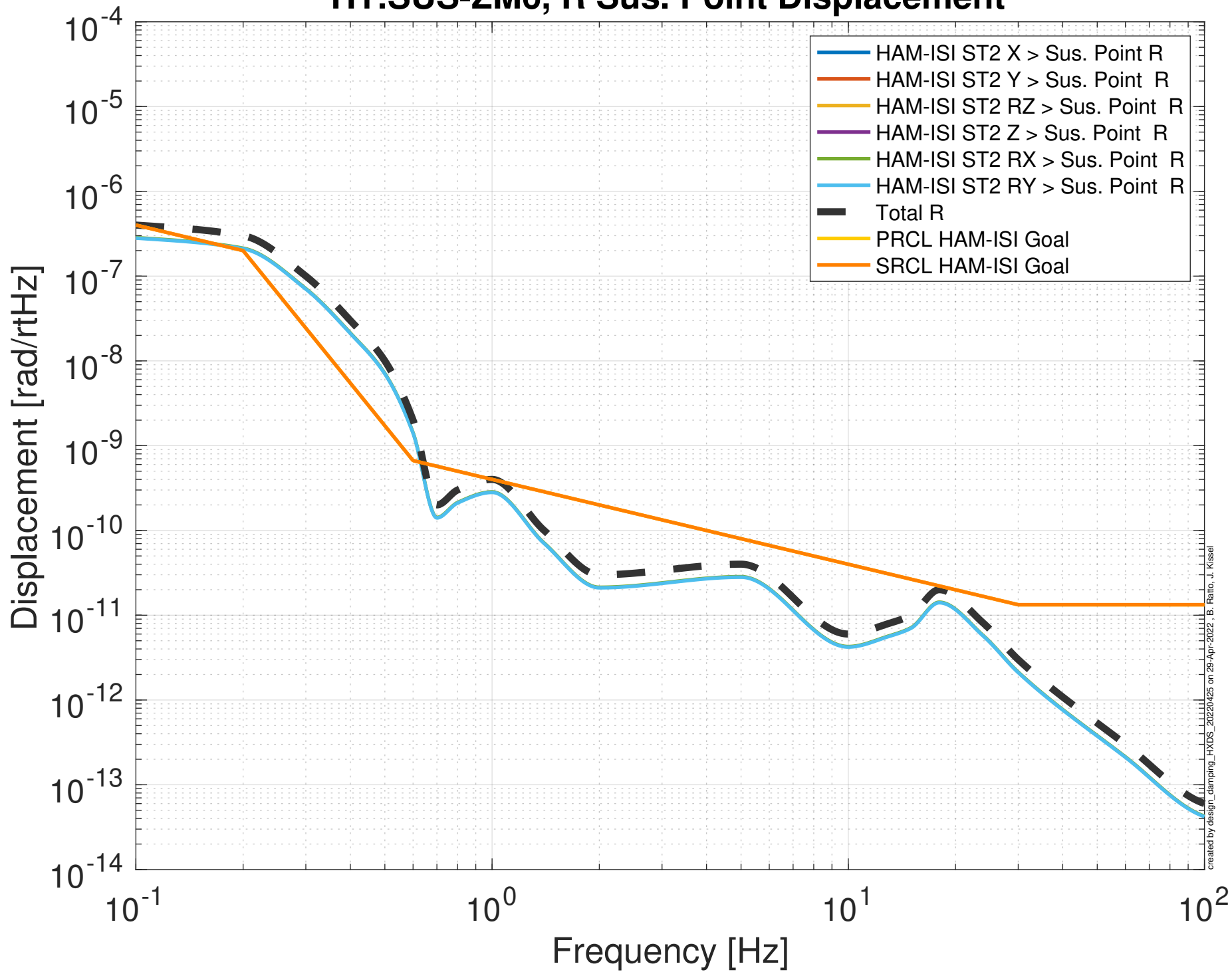


# Projected ISI Seismic Noise Budget H1:SUS-ZM6, V Sus. Point Displacement



created by design\_camping\_HXDS\_20220425 on 29-Apr-2022, B. Peltz, J. Kissel

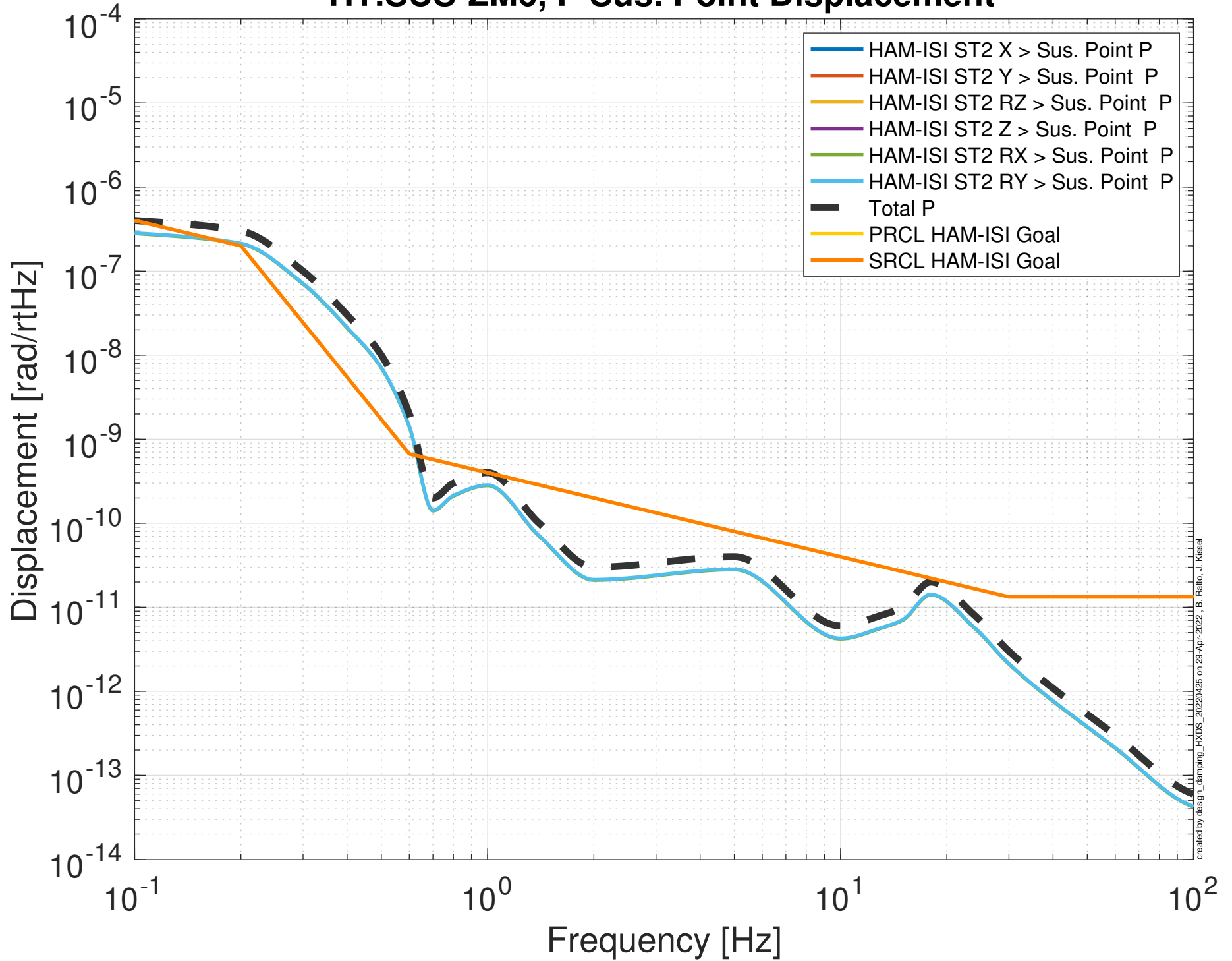
# Projected ISI Seismic Noise Budget H1:SUS-ZM6, R Sus. Point Displacement



created by design\_clamping\_HXDS\_20220425 on 29-Apr-2022 .B. Peltor, J. Kissel

# Projected ISI Seismic Noise Budget

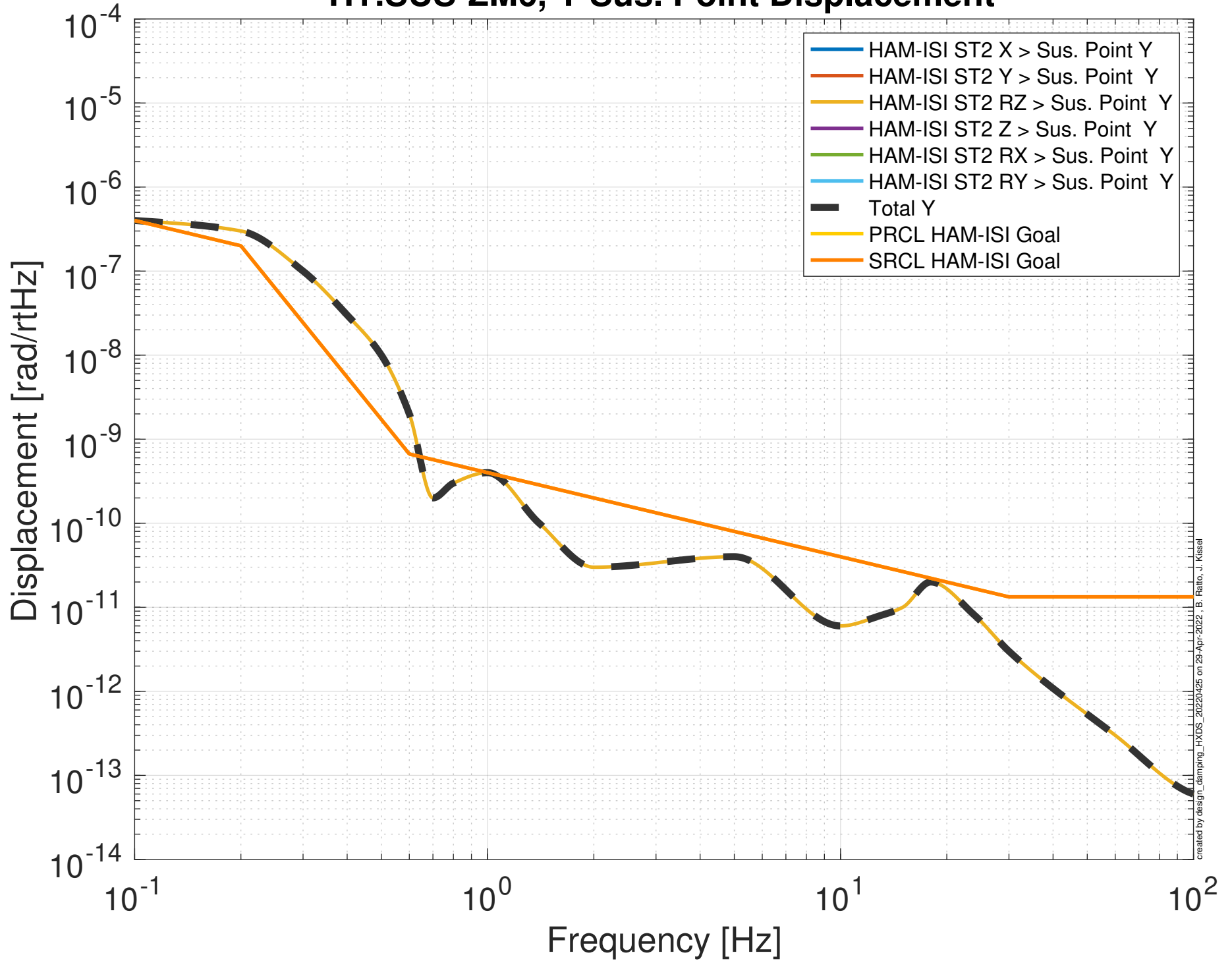
## H1:SUS-ZM6, P Sus. Point Displacement



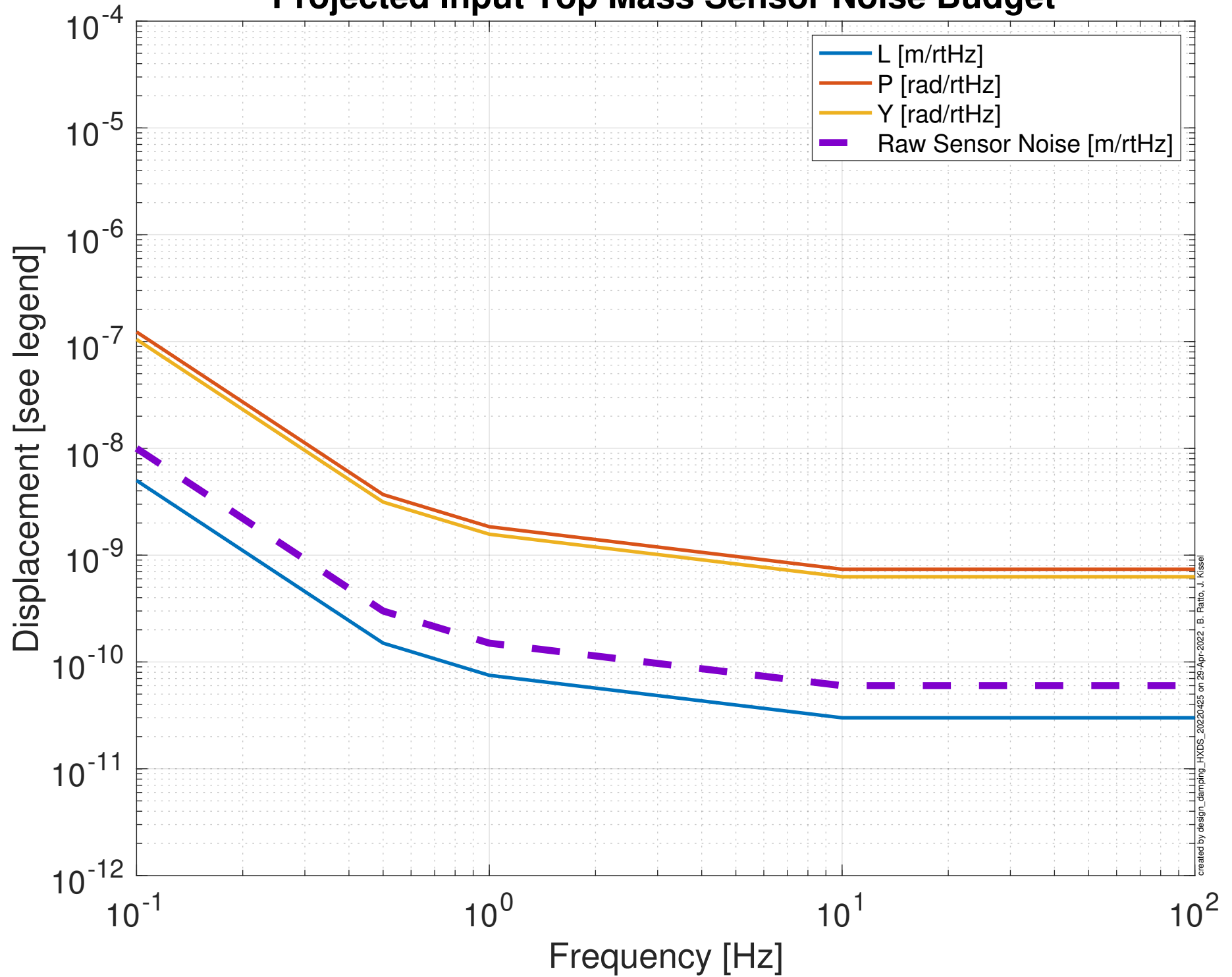
created by design\_clamping\_HXDS\_20220425 on 29-Apr-2022, B. Peltz, J. Kissel

# Projected ISI Seismic Noise Budget

## H1:SUS-ZM6, Y Sus. Point Displacement



# Projected Input Top Mass Sensor Noise Budget



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