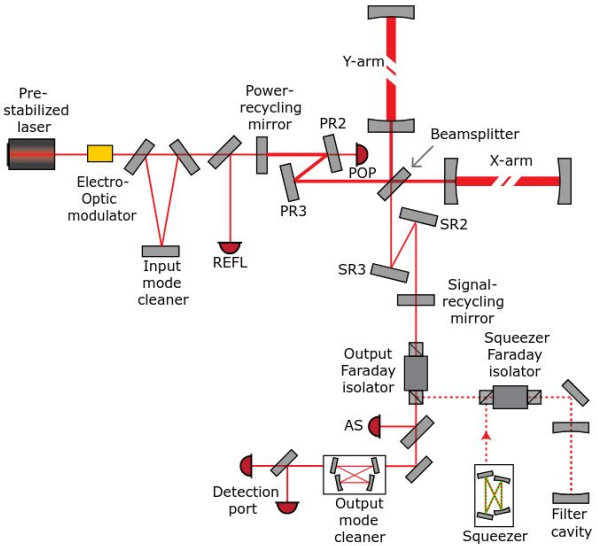
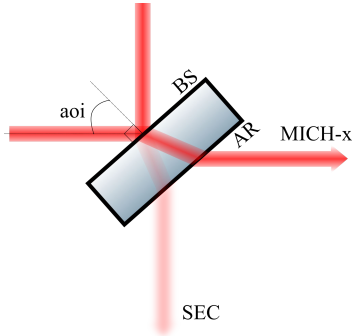
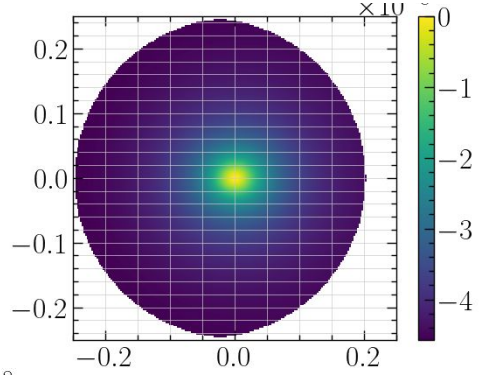
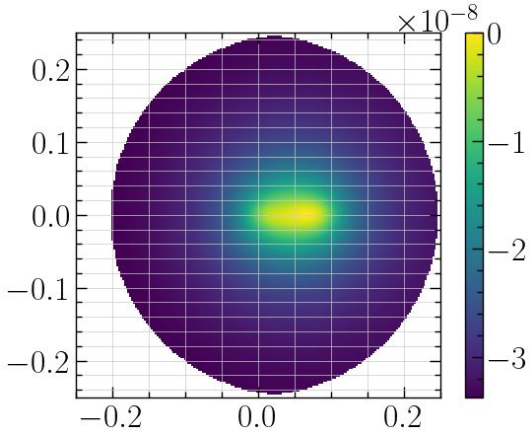
A# beamsplitter thermal lensing



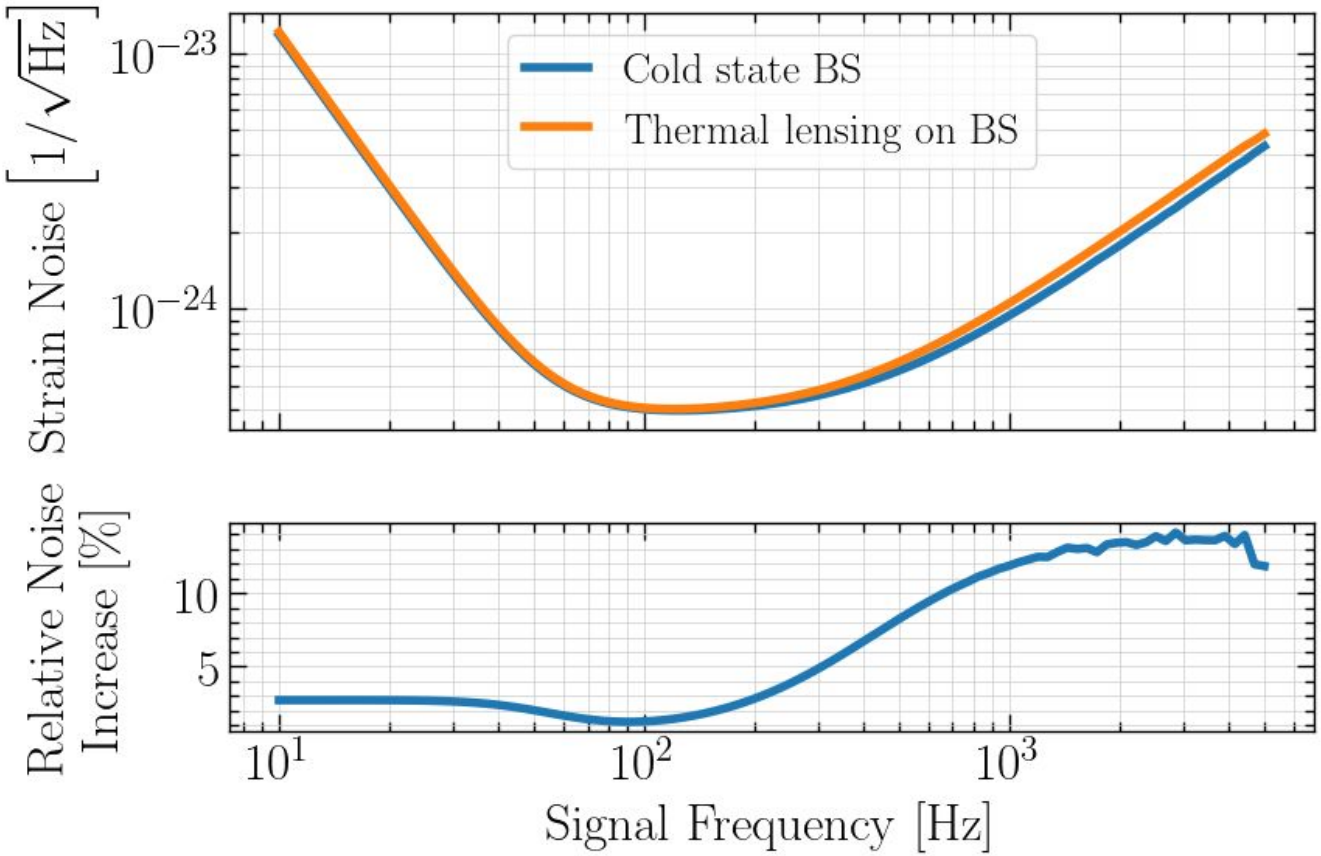






Group meeting update 8/19

Sensitivity Curve



Self-consistent Thermal Effects

$$P_{arm} = \frac{1}{2}\{G_{PRC}G_{arm}\}\,P_{in}$$

$$P_{arm} = \frac{1}{2}\{G'_{PRC}G_{arm}\}\,P'_{in}$$

1. Make base model w/ P_arm=1.5 MW
2. Scale P_in | G_arm is Constant
3. Find P_prc
4. Make BS maps
5. Scale P_in

$$P_{PRC} = G_{PRC}P_{in}$$

$$P_{arm} = \frac{1}{2}\{G_{PRC}P_{in}\}\,G_{arm}$$

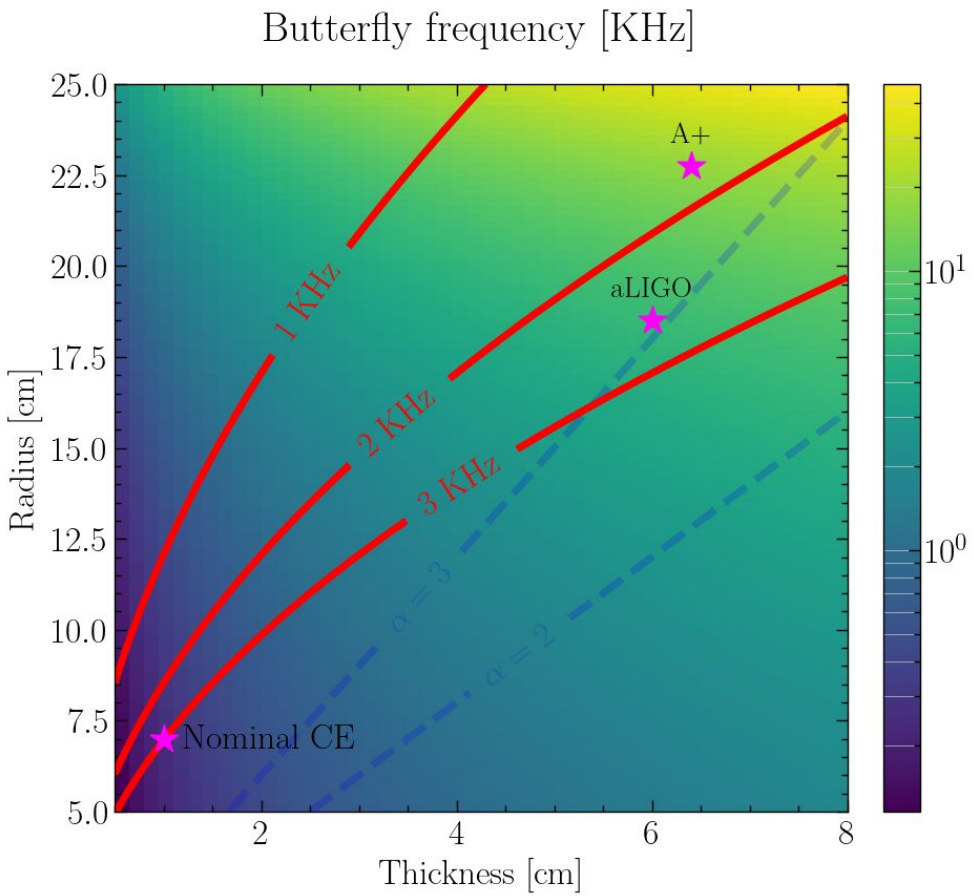
$$P_{arm} = \frac{1}{2}P_{PRC}G_{arm}$$

$$P'_{arm} = \frac{1}{2}P'_{PRC}G_{arm}$$

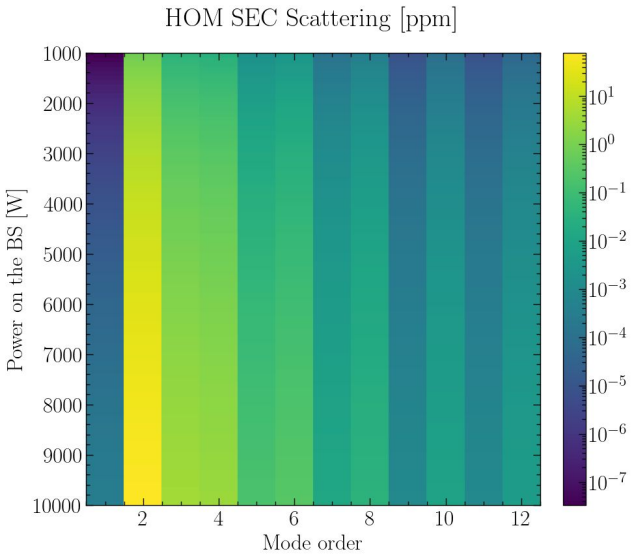
$$\text{force } P'_{arm} = P_{arm}$$

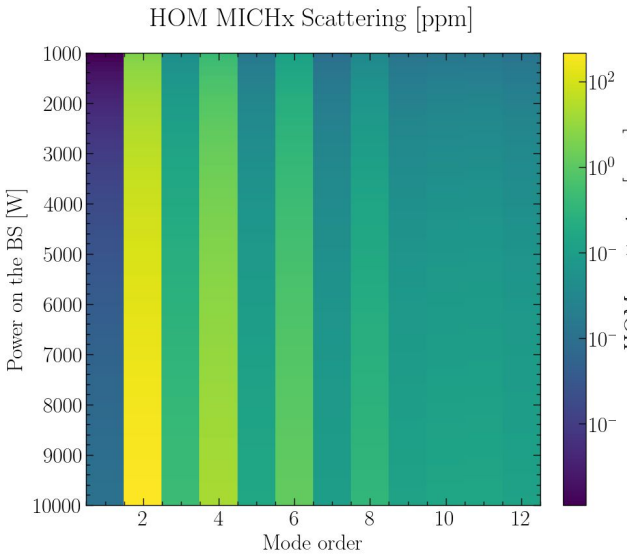
$$P'_{PRC} = P_{PRC}$$

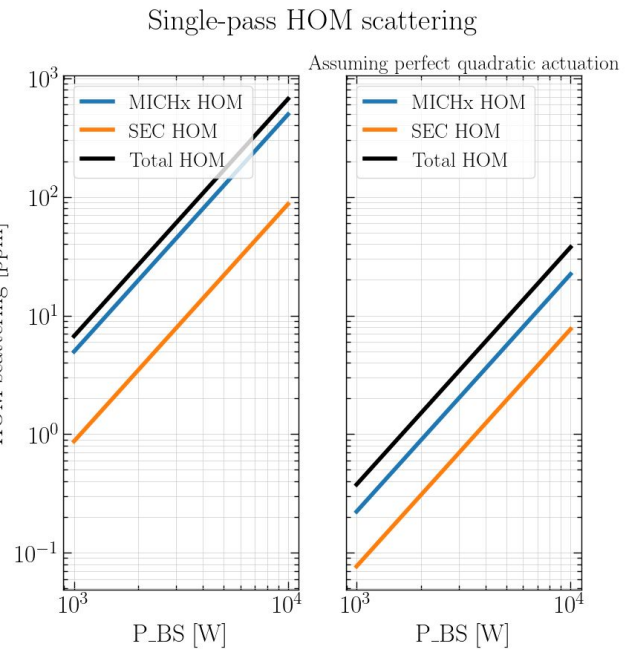
Mechanical Modes



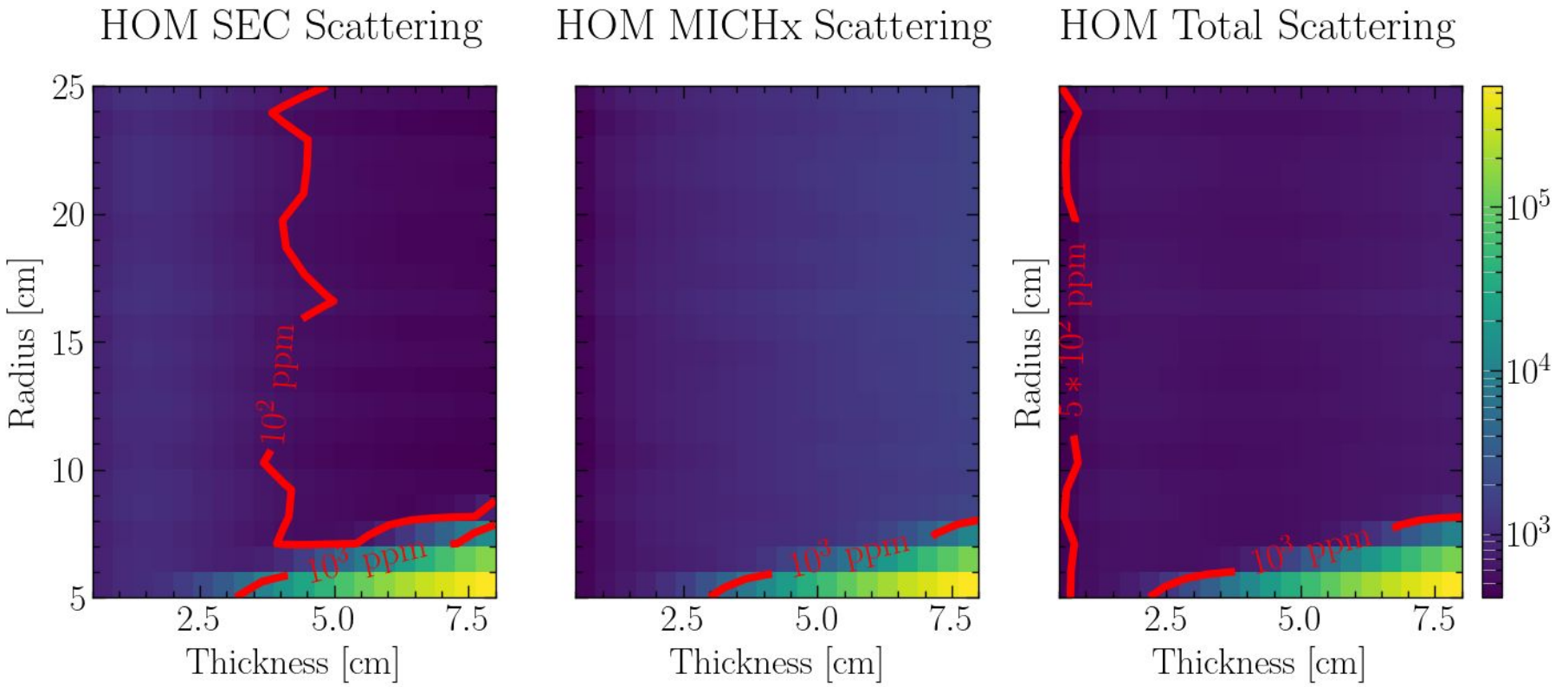
HOM Scattering







HOM Scattering w/o TCS



HOM Scattering w/ Ideal Quadratic Actuation