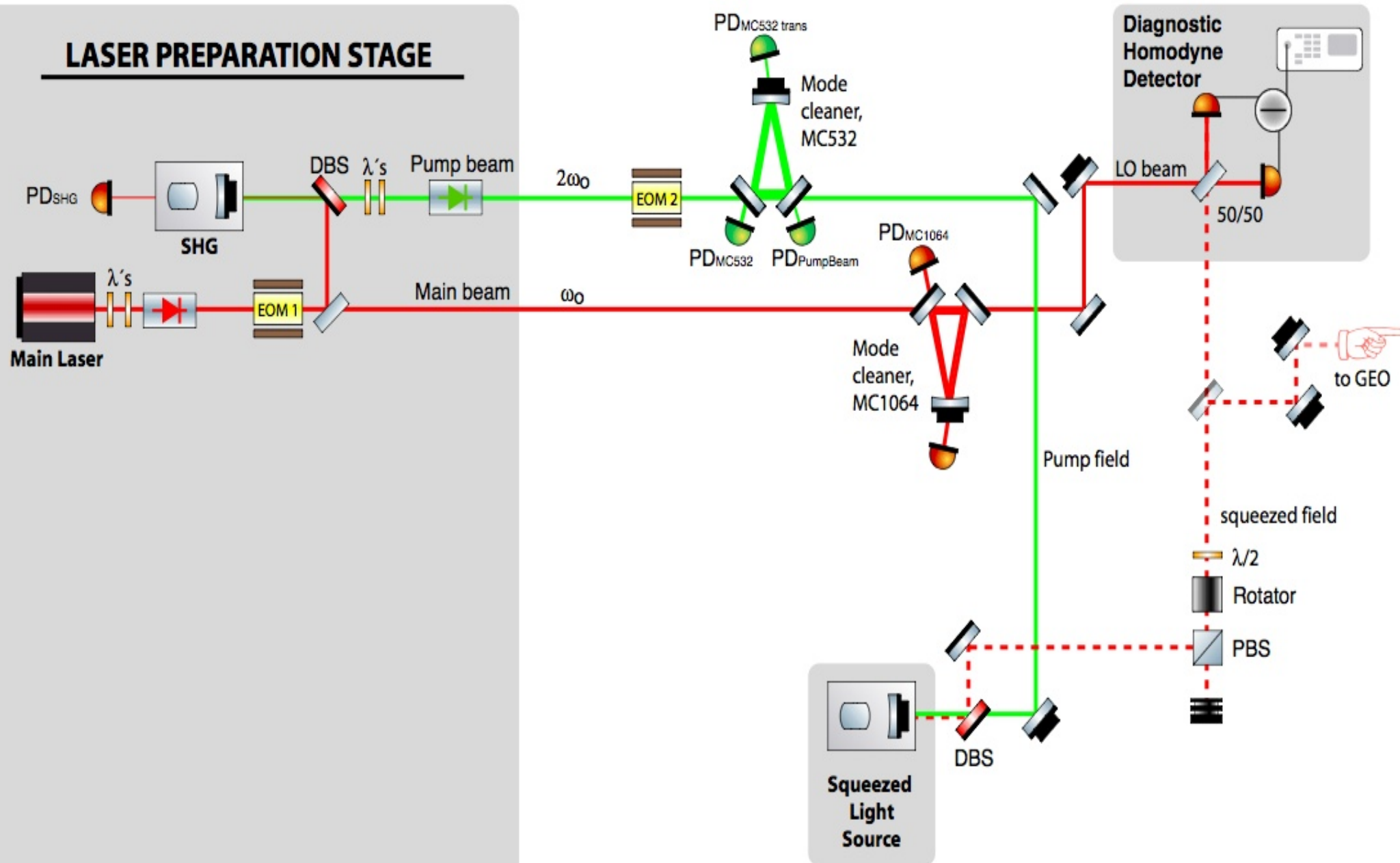
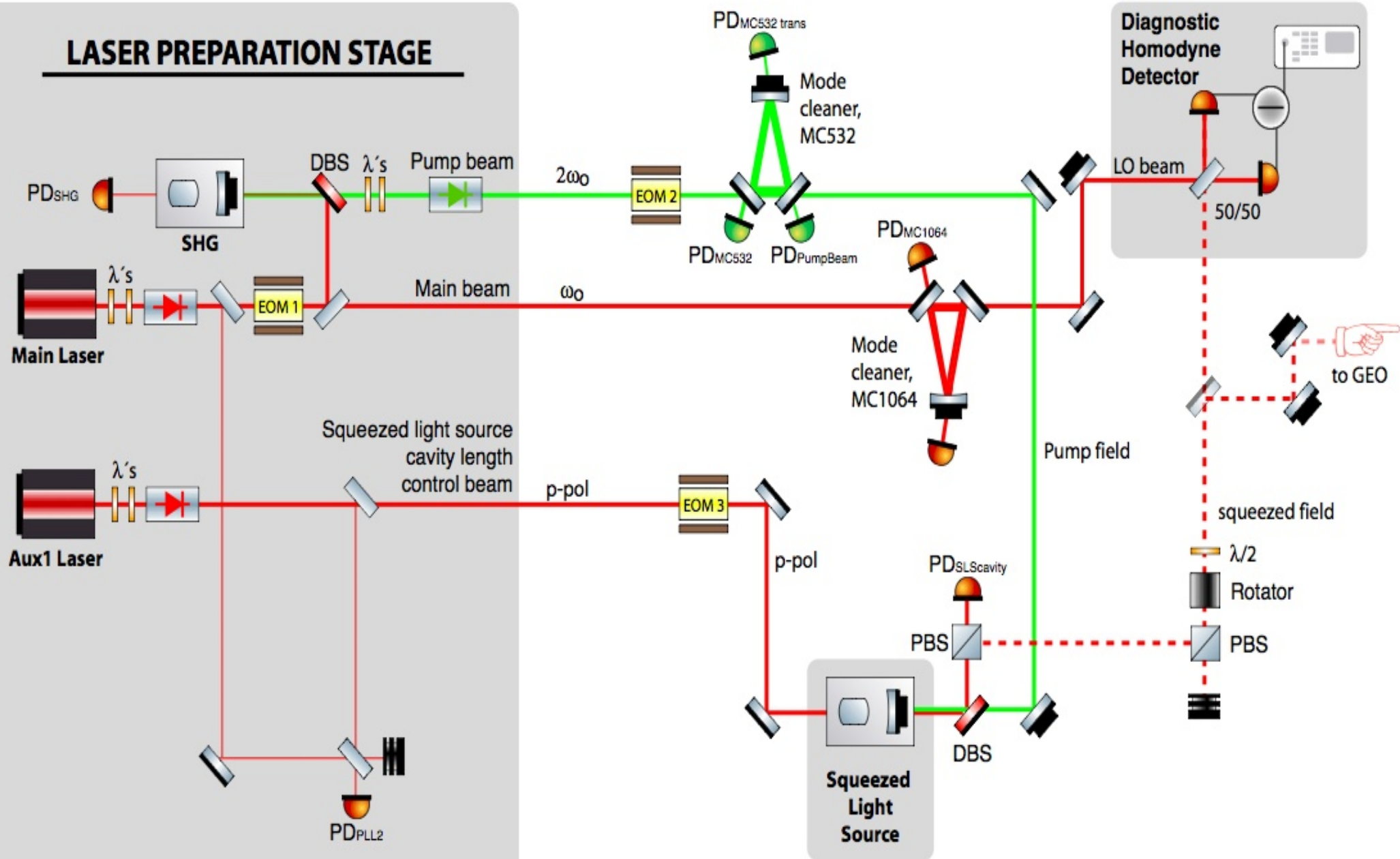


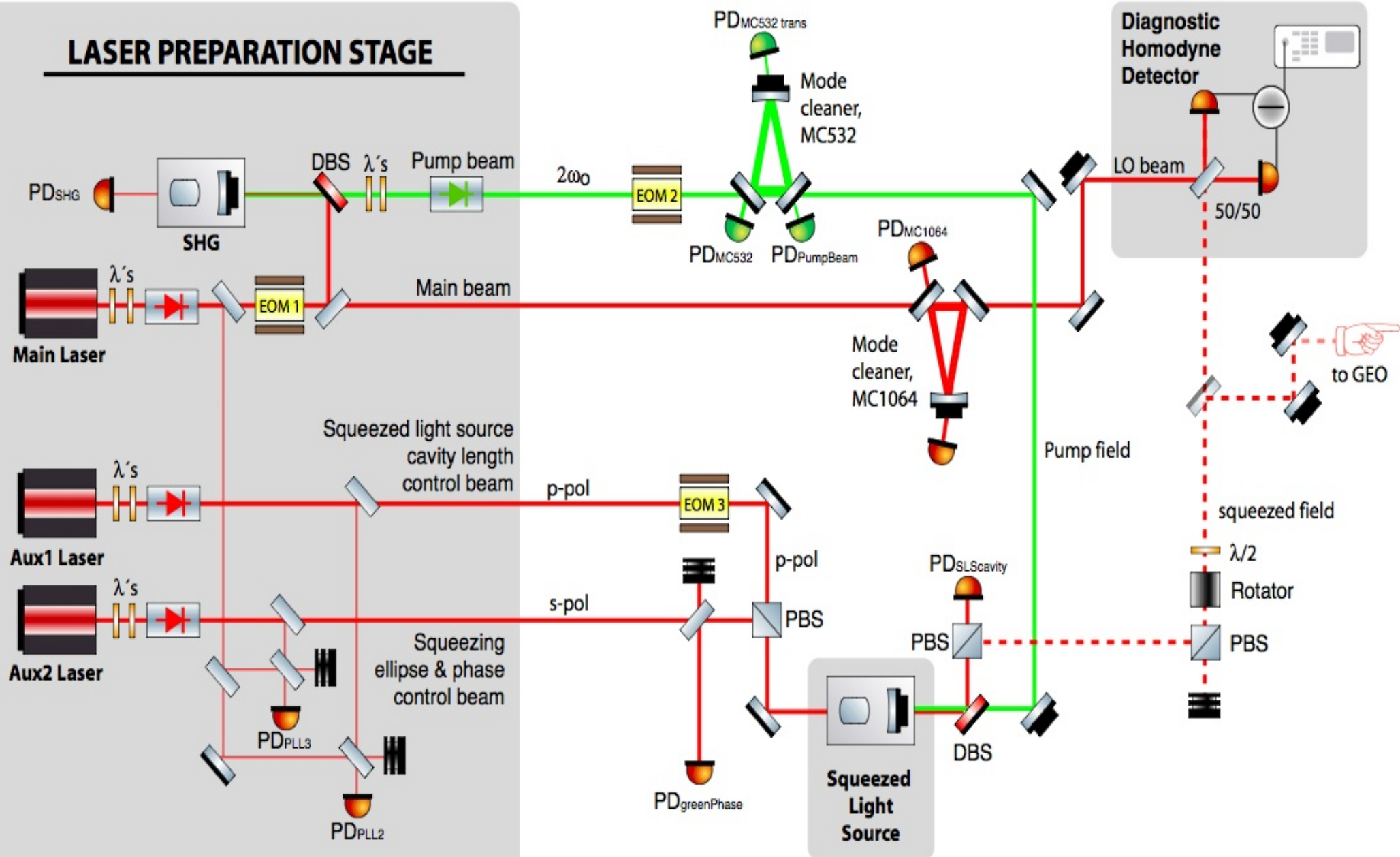
LASER PREPARATION STAGE



LASER PREPARATION STAGE



LASER PREPARATION STAGE



GEO 600

12 Watt
Injection
locked
master-slave
system

80 MHz

AOM

Single
Mode
Fibre

BS

3mW

Squeezing
main laser
2 W

Squeezing
aux. laser 1
0.3 W

Squeezing
aux. laser 2
0.3W

PLL2

PLL3

Squeezing resonator length
control beam

SHG

DBS

OPA

Phaseshifter

PBS

Faraday
Isolator

flip mirror

Homodyne
detector

SQUEEZED LIGHT SOURCE

600m north arm
(folded in vertical plane)

MPR
 $T=0.09\%$

600m east arm
(folded in vertical plane)

BS

MCn

MCE

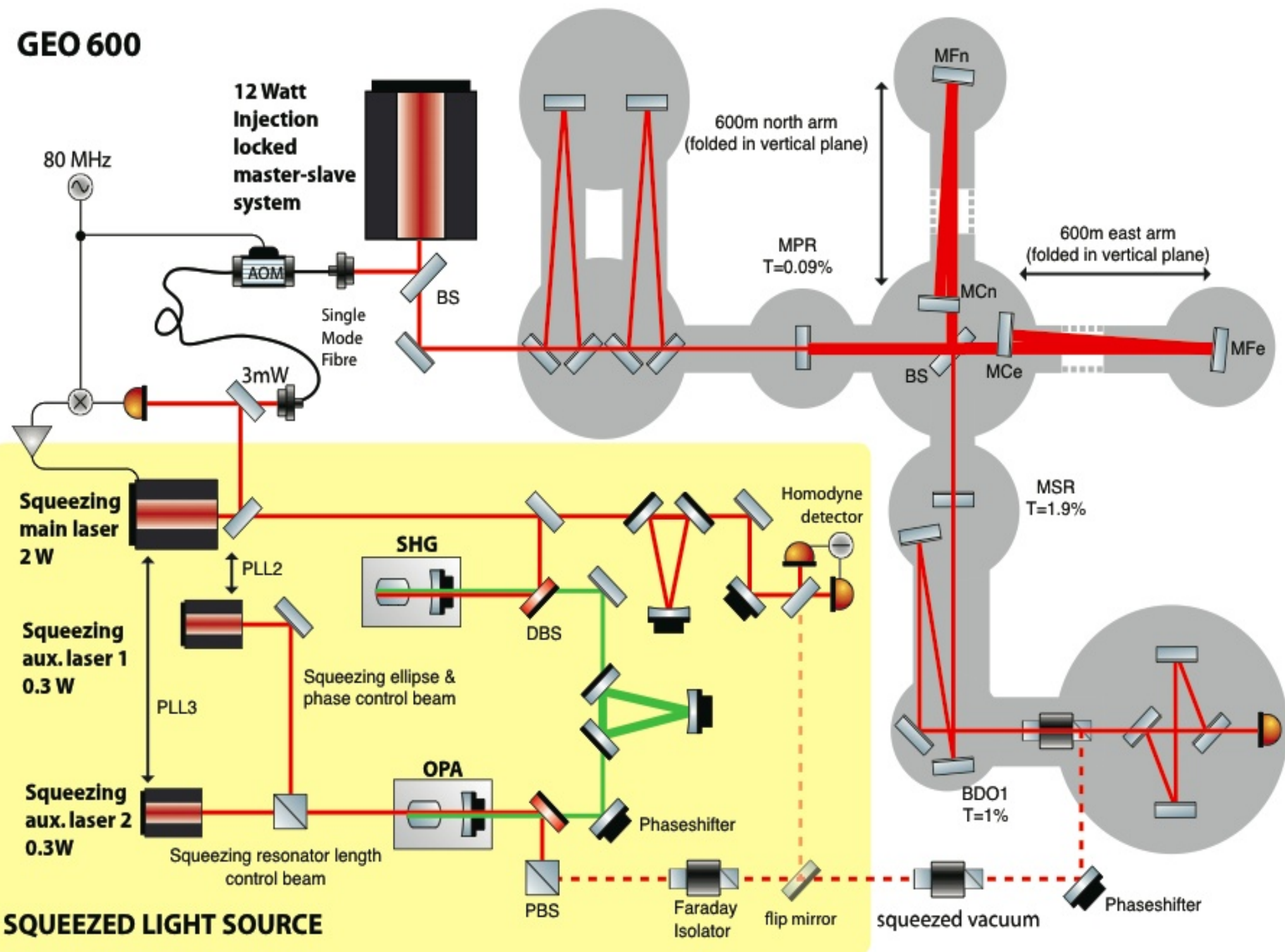
MFe

MSR
 $T=1.9\%$

BDO1
 $T=1\%$

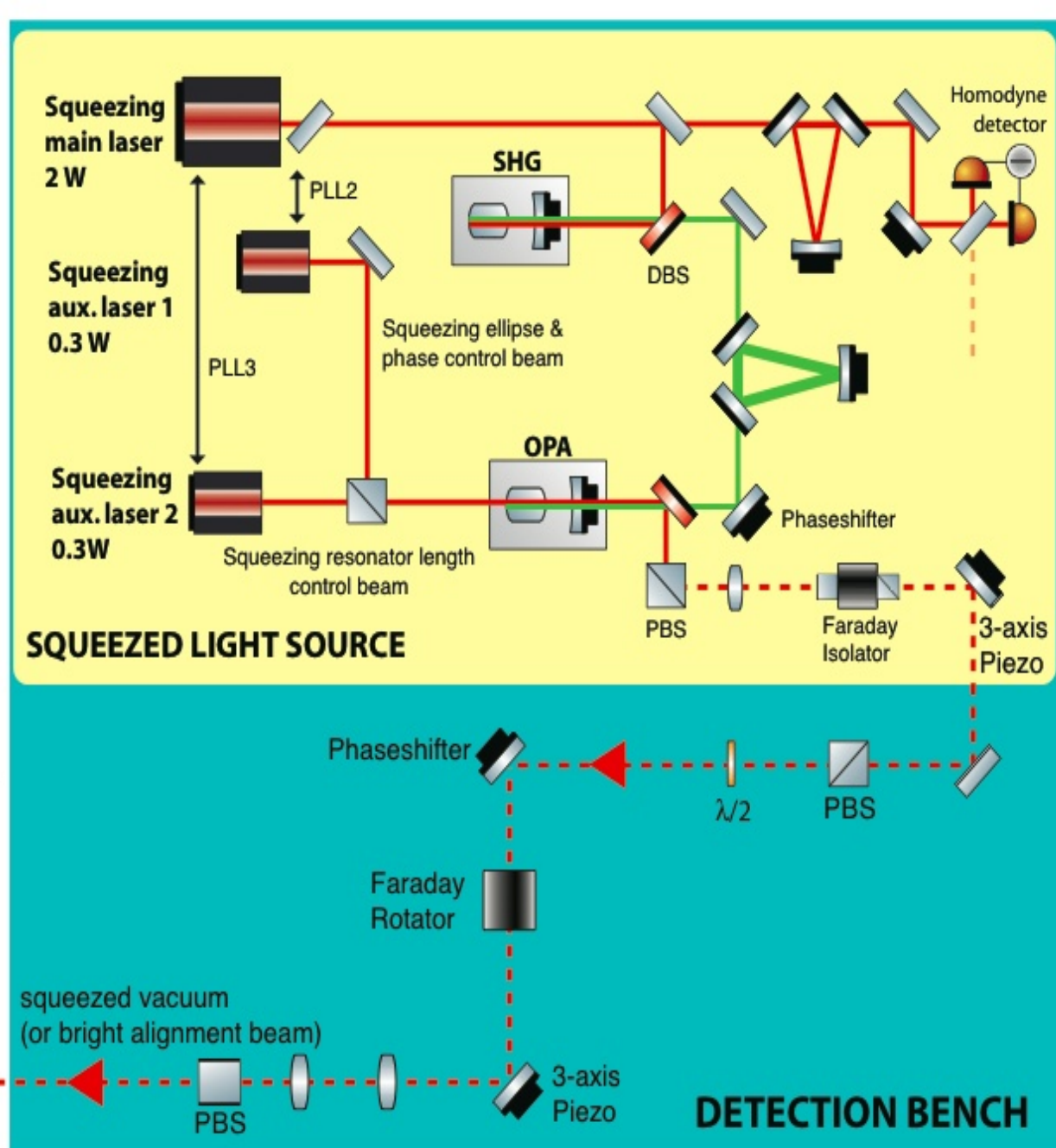
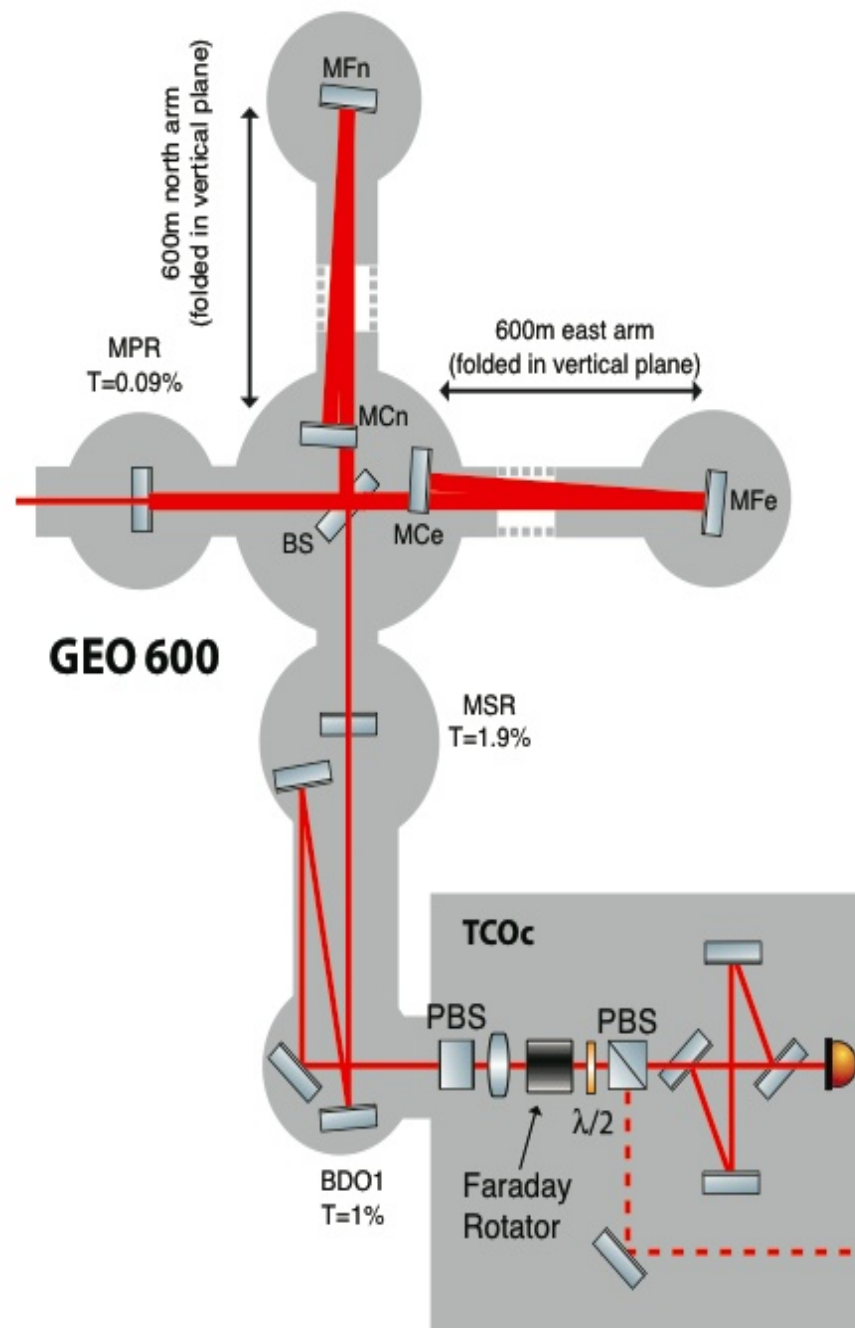
Phaseshifter

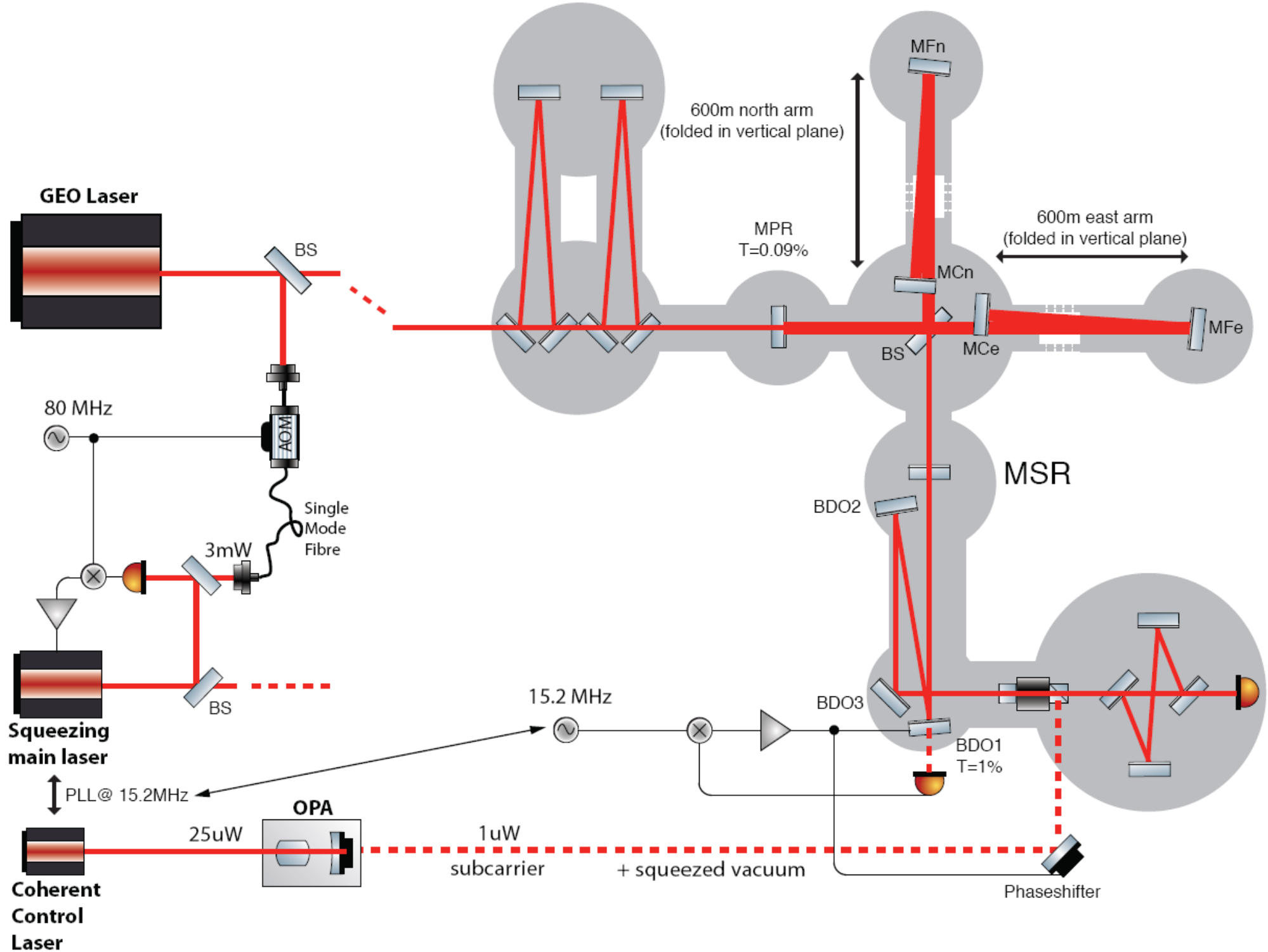
squeezed vacuum

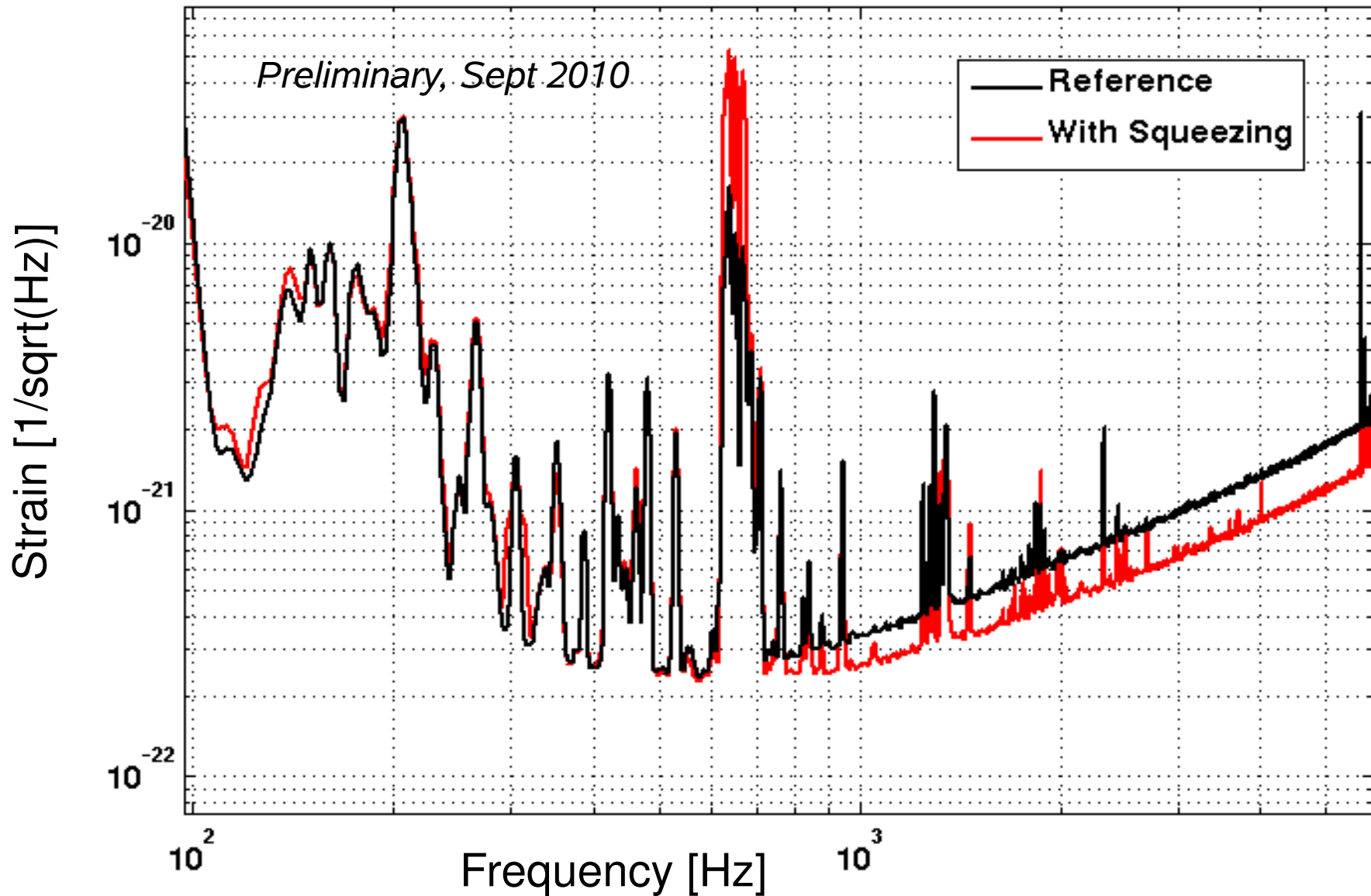




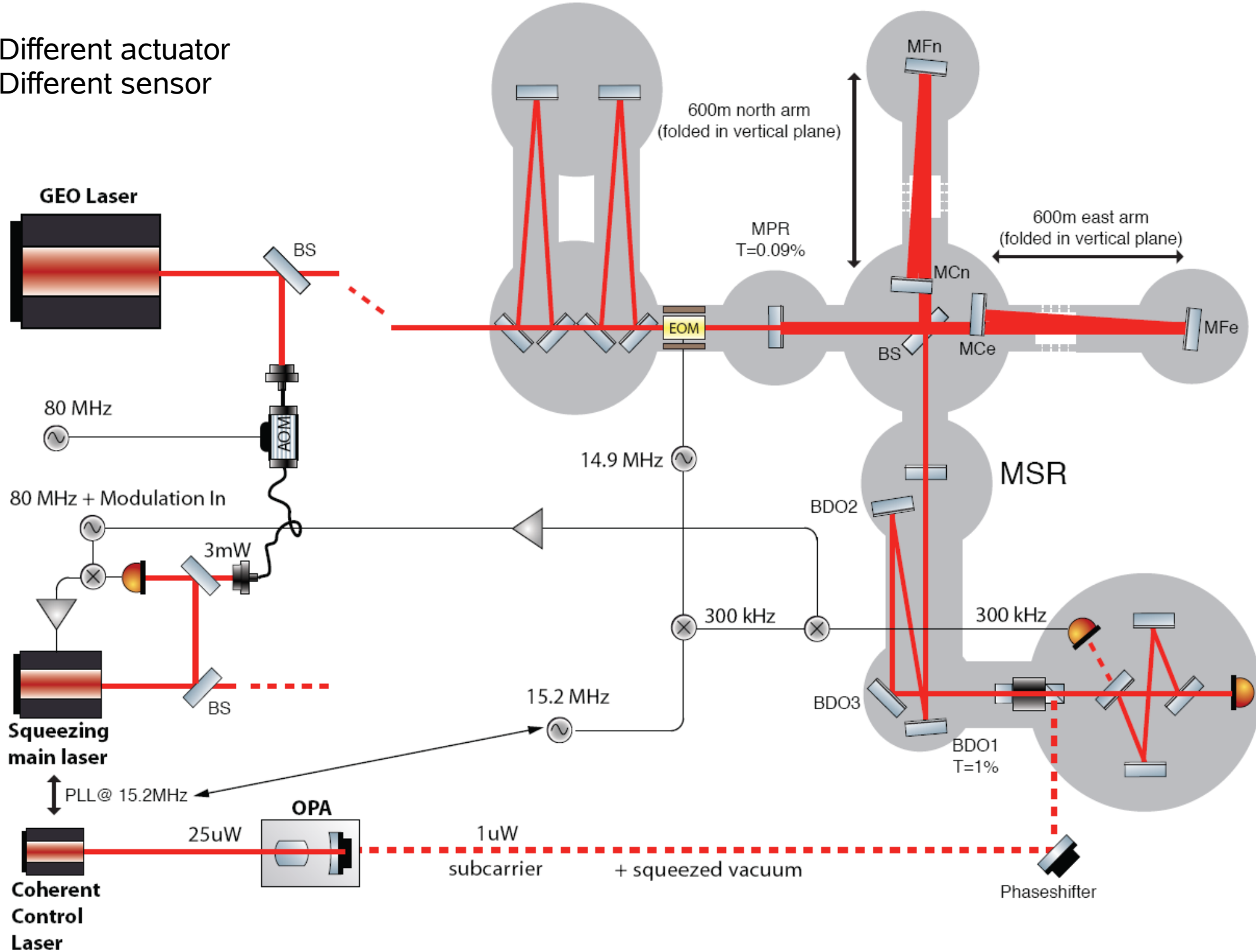


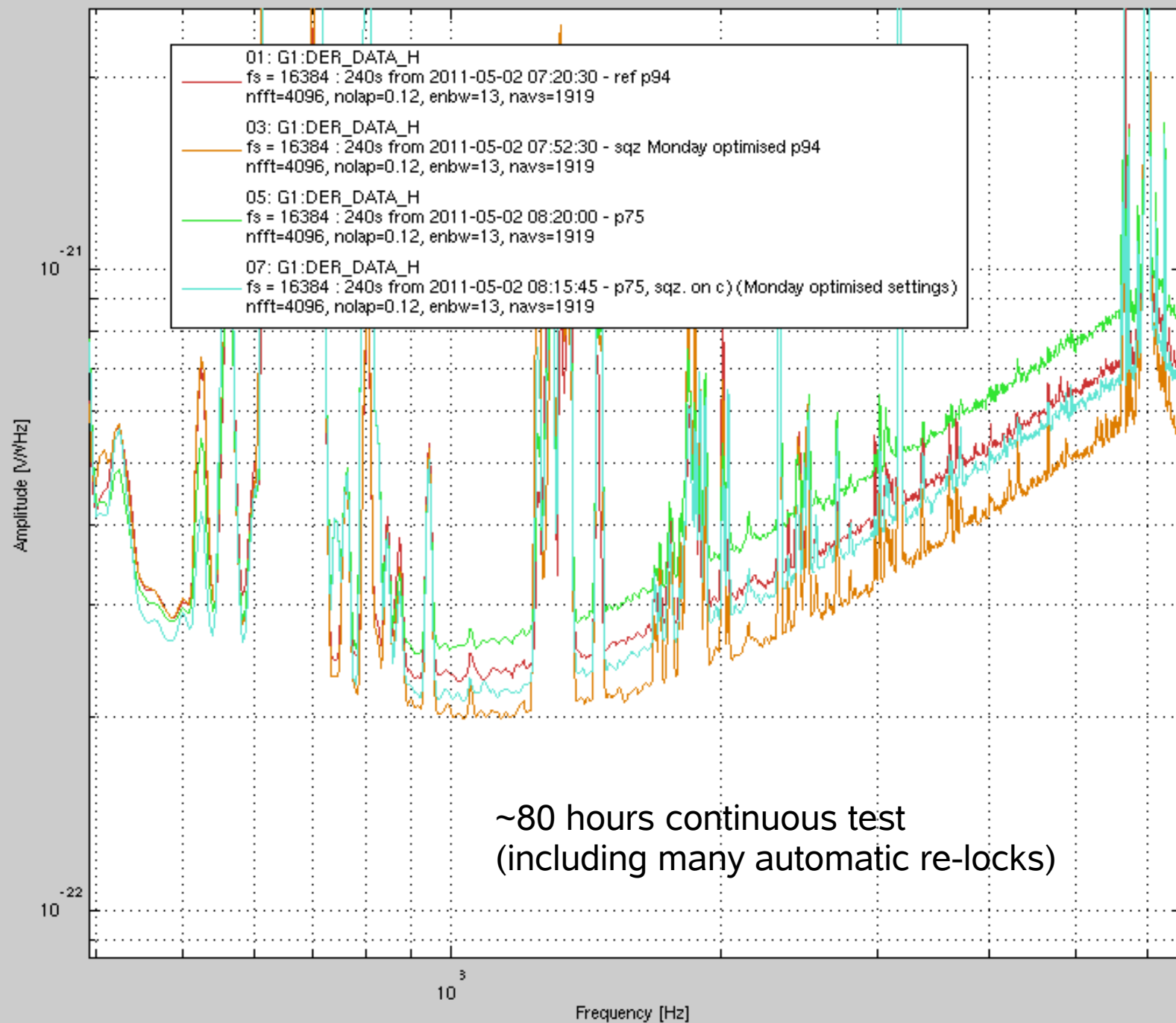






Different actuator
Different sensor





Whats missing

- ❑ DC stability of phase lock not good enough. Noise locking scheme for very low freq.?
- ❑ Automatic alignment. Almost unexplored yet. Perhaps refl. OMC signal usefult as well
- ❑ More squeezing of GEO: -Reduce OMC losses, lower-loss optical setup between squeezer and GEO, -Increase locking BW with PZT and reduce back-scatter of this configuration