H1 and model by FFT+COC

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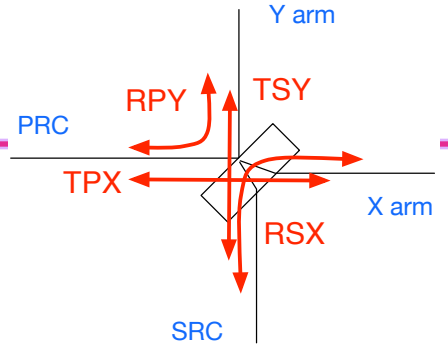
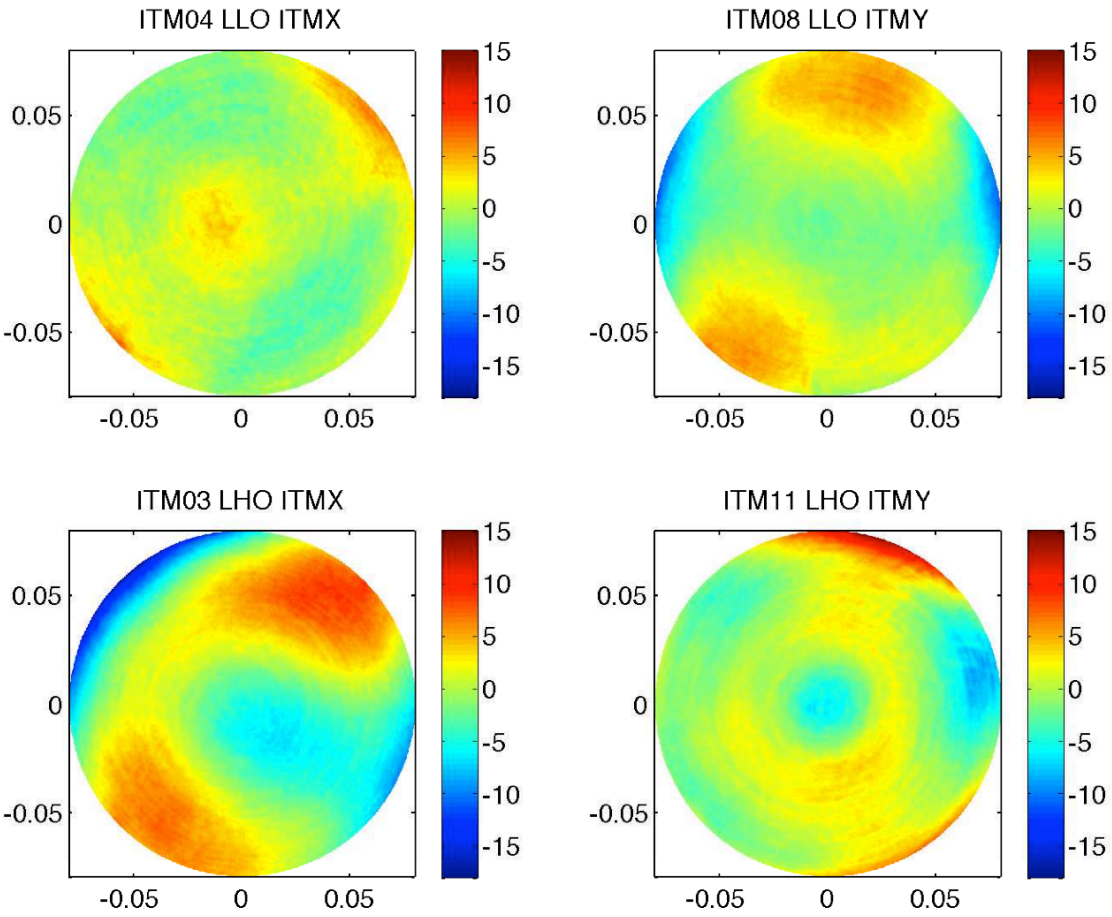
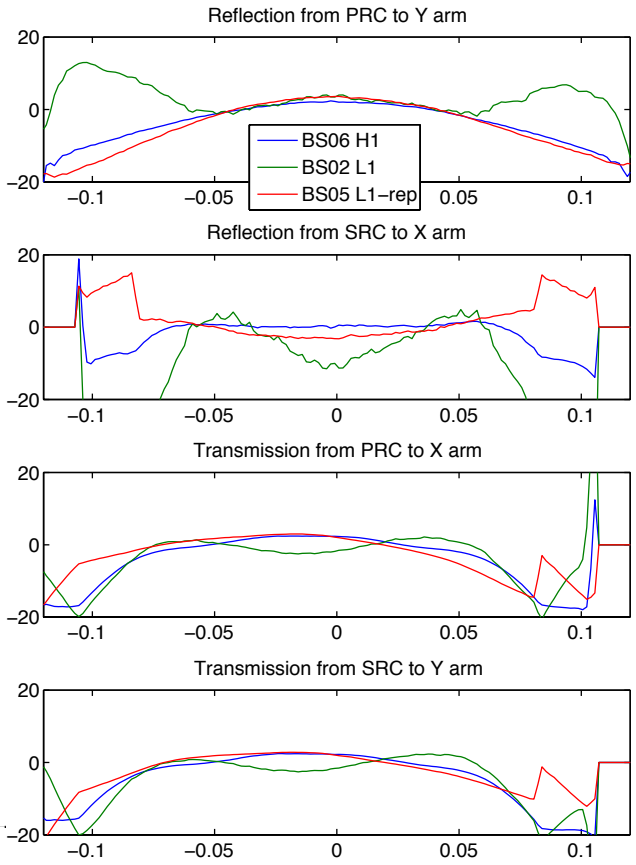
- Effects of ITM SPTWE
- Simple Contrast Defect calculation
- Beam size effect
- PRMI vs PRFPM ⇔ SB vs CR

ITM SPTWE (tilt, power removed) and BS maps



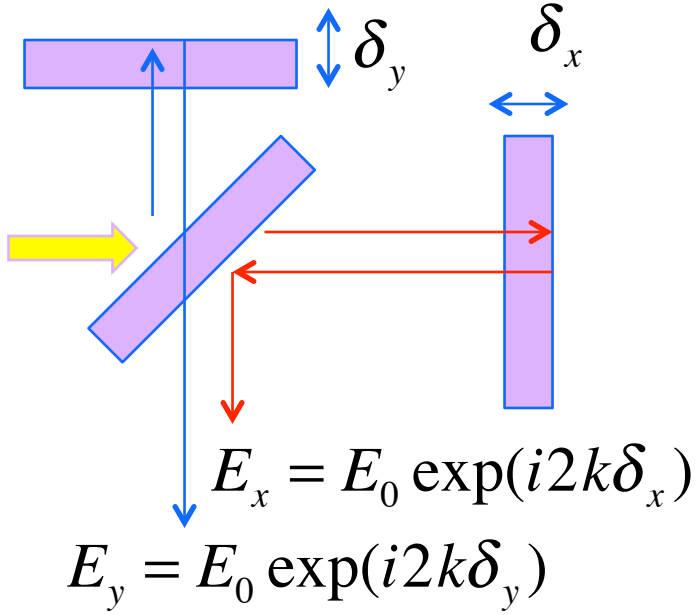


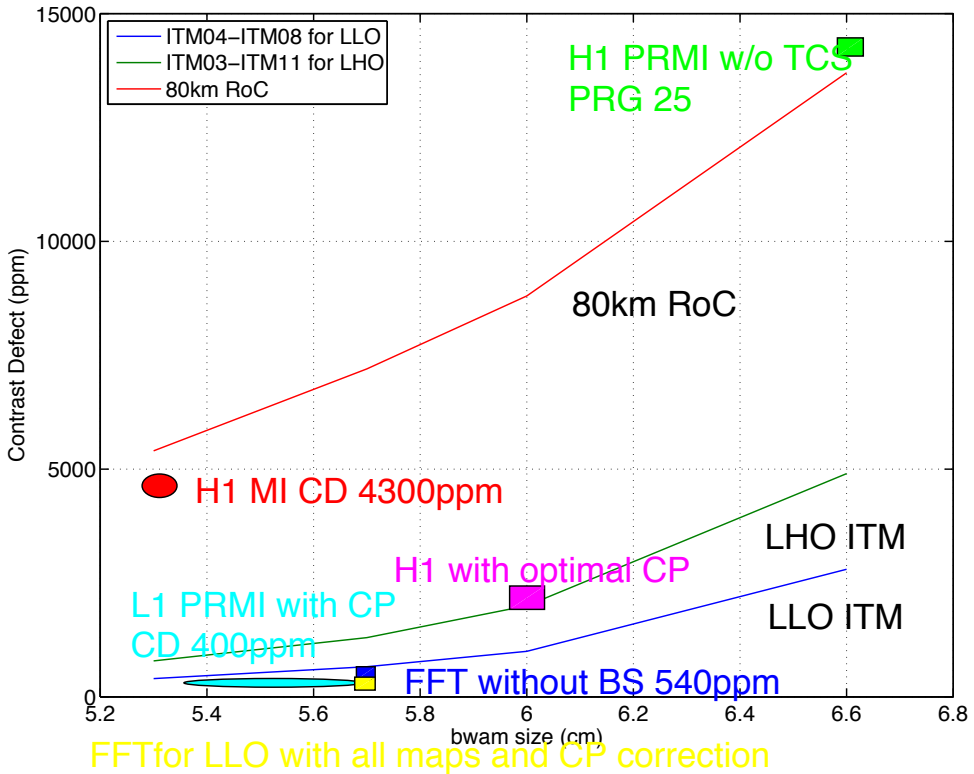


Contrast Defect estimation

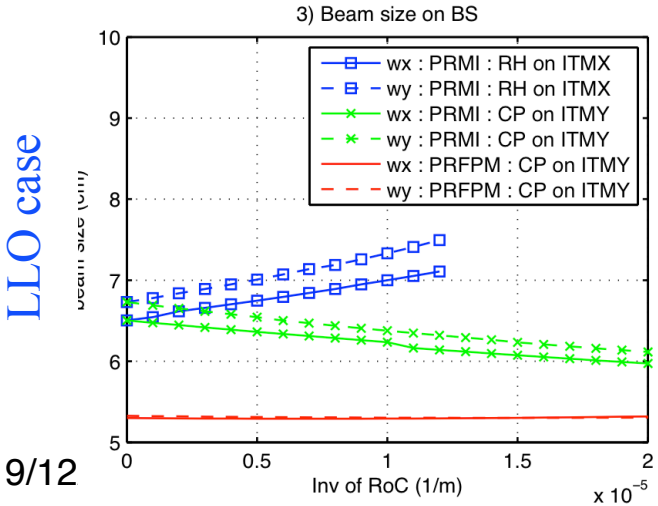
$$CD = Power(E_x - E_y) / Power(E_x + E_y)$$

$$= \int dx\,dy (2k)^2 \frac{2}{\pi w^2} \exp(-2\frac{r^2}{w^2})(\delta_x(x,y) - \delta_y(x,y))^2 / 4$$





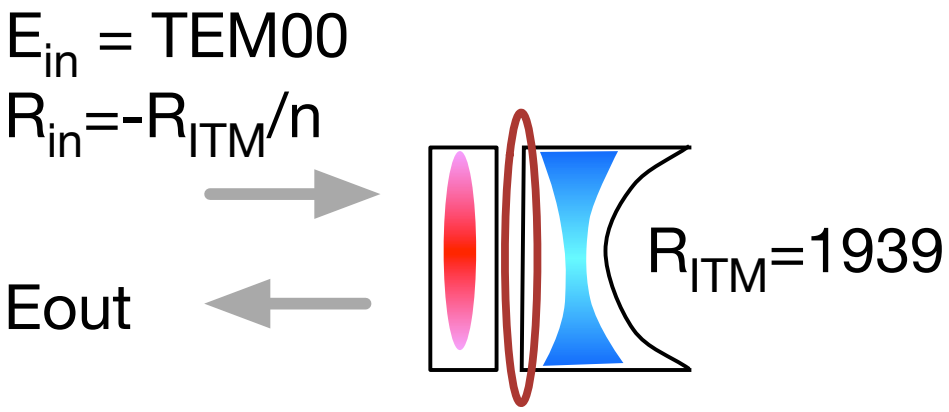
FFTfor LLO with all maps and CP correction



PRMI vs PRFPM ⇔ SB vs CR

- When arms are attached, CR does not see none of these
  - » Arm modes determine the CR mode
  - » H1 : CD 190, PRG 40, w(ITM) = 5.3cm
  - » L1 : CD 280, PRG 40, w(ITM) = 5.3cm
- The mode seen in PRMI without arm is the mode of BS with arm attached
- When CP is used to compensate the large diverging lens, SB mode matches with CR mode and the beam size is optimal (5.3cm)
- When RH is used to compensate the large diverging lens
  - » Modes of CR and SB mismatch
  - » SB beam on ITM becomes larger (5.7~6.6cm) and ITM non uniformity affects more

Mode coupling vs beam size



w	5.3cm	6.6cm
ITMX	1.1%	3.2%
ITMY	0.2%	1.0%