Emittance Measurement

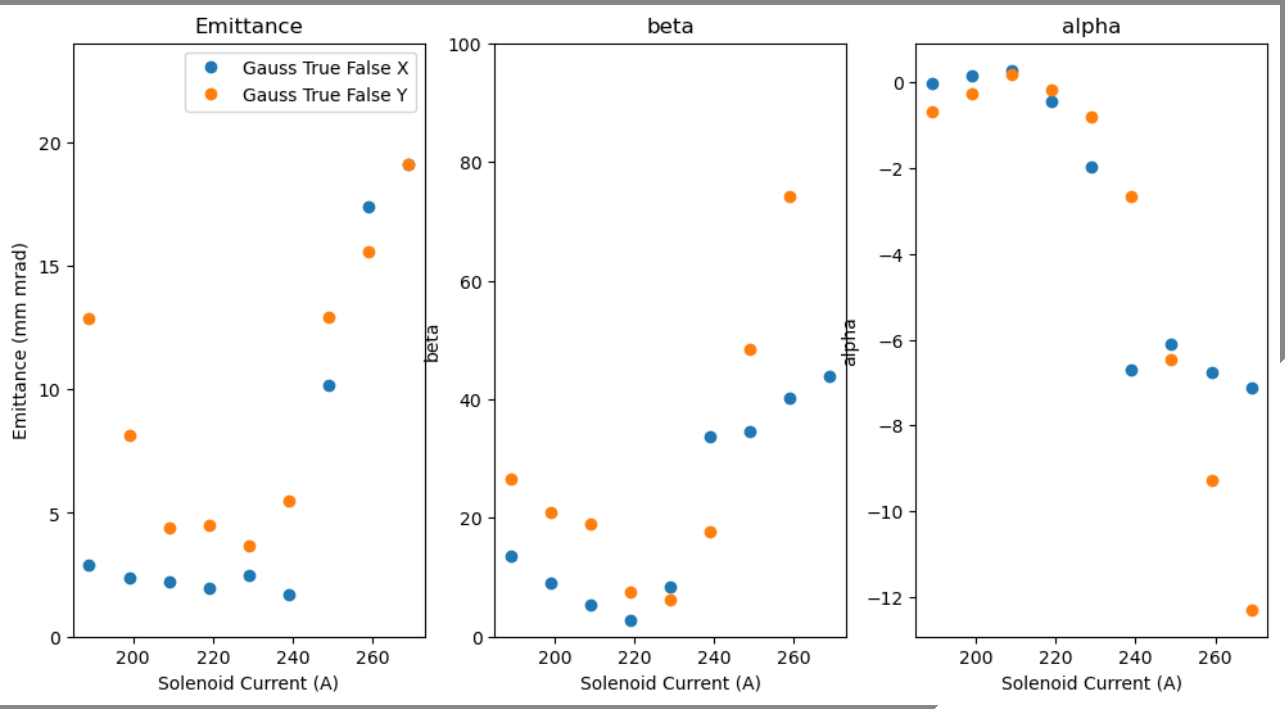
data:

- 20241127
- 20241205
- 20241211
- 20241210
- **20241218** :
- **20250107** :

data:

- 20241218 :
  - **100 pC** + Q1,Q2 = 0
  - **100 pC** + Iris = 0.5
  - **100 pC** + QP7
- 20250107 :
  - **100 pC** + Q1,Q2 = 0 and Q1/Q2 nominal
  - **100 pC** + Iris = 0.5, 1.3, 5.0
  - **100 pC** + QP7 + Q1,Q2 = 0 and Q1/Q2 non zero

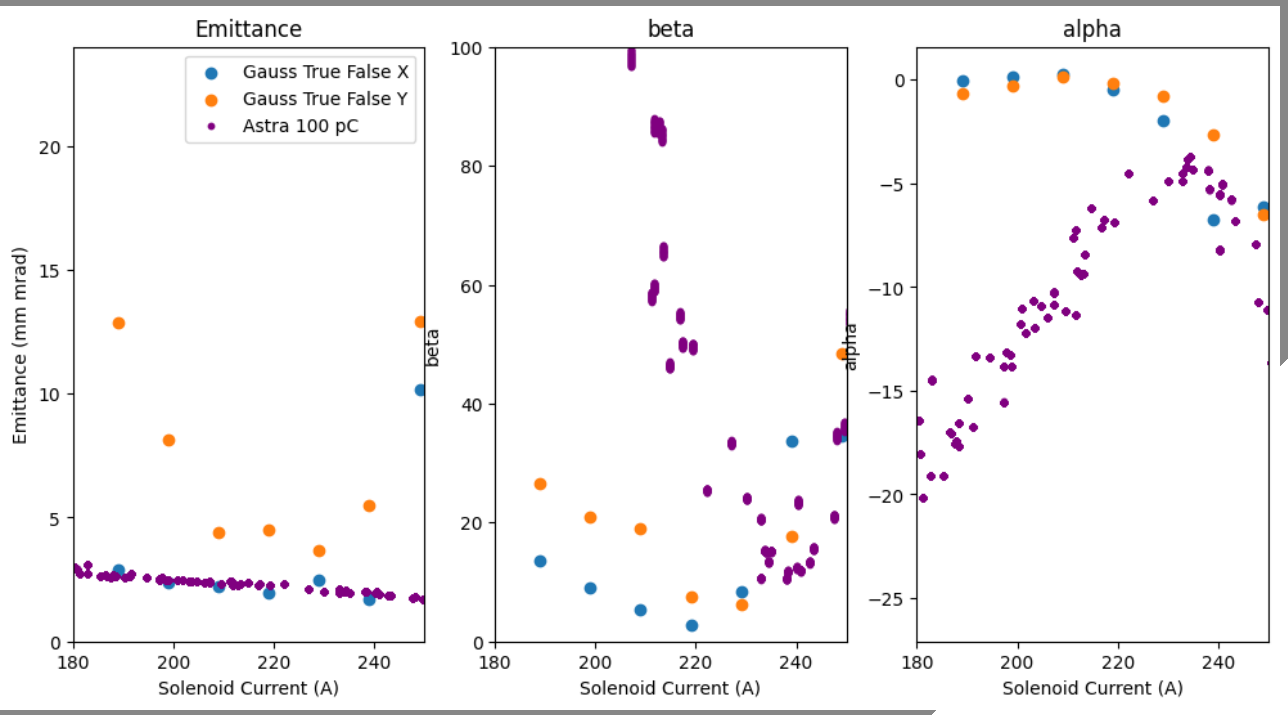
Twiss parameters at QP3 (QP1 = QP2 = 0)



Comments:

- Gaus fit on beam transverse distribution
- X, Y discrepancy

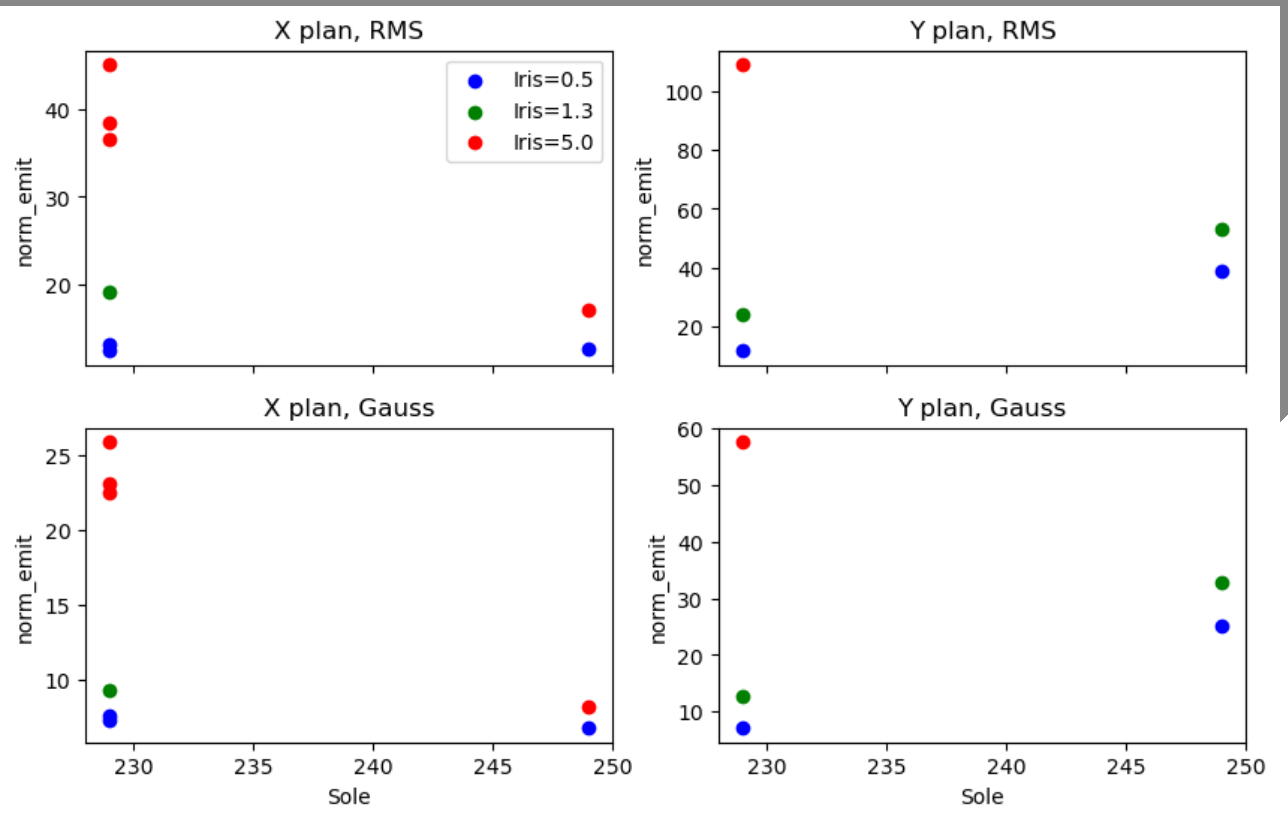
Twiss parameters at QP3 (QP1 = QP2 = 0)



Comments:

- Emittance in X good agreement with Astra, Y is higher
- At low solenoid, beta and alpha quite different than the model

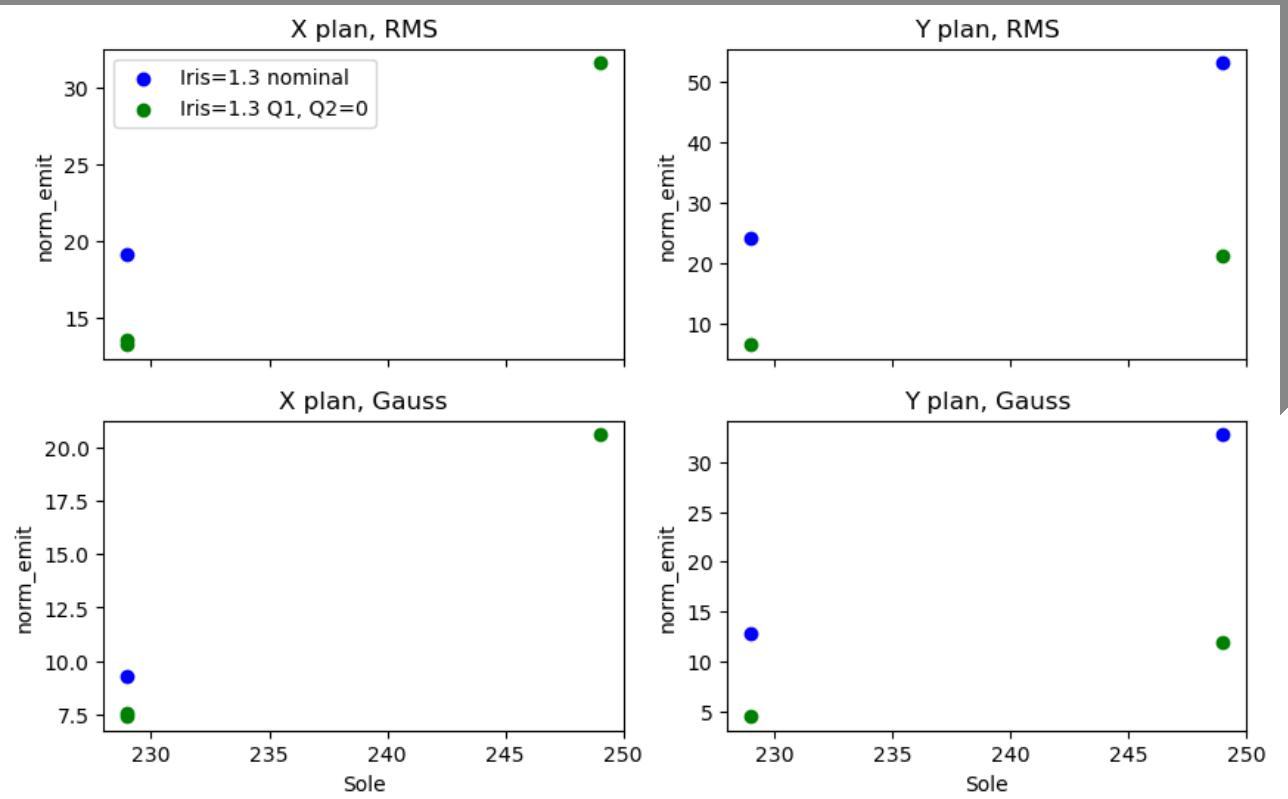
Emittance vs Iris opening



Comments:

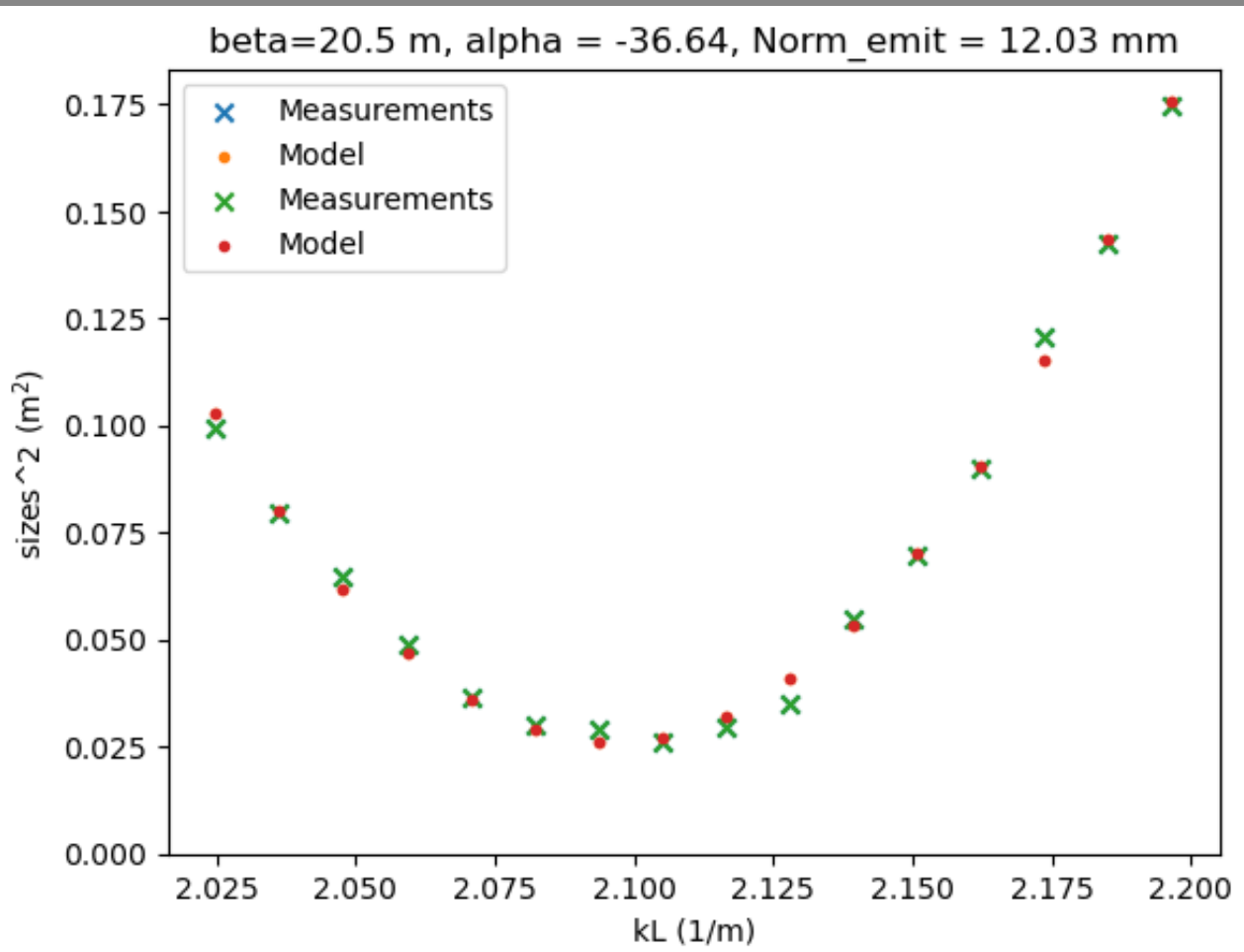
- many data same conditions, make little dispersion
- emittance increase with iris opening

Emittance (QP1 = QP2 = 0) vs Nominal Q1/Q2



Comments:

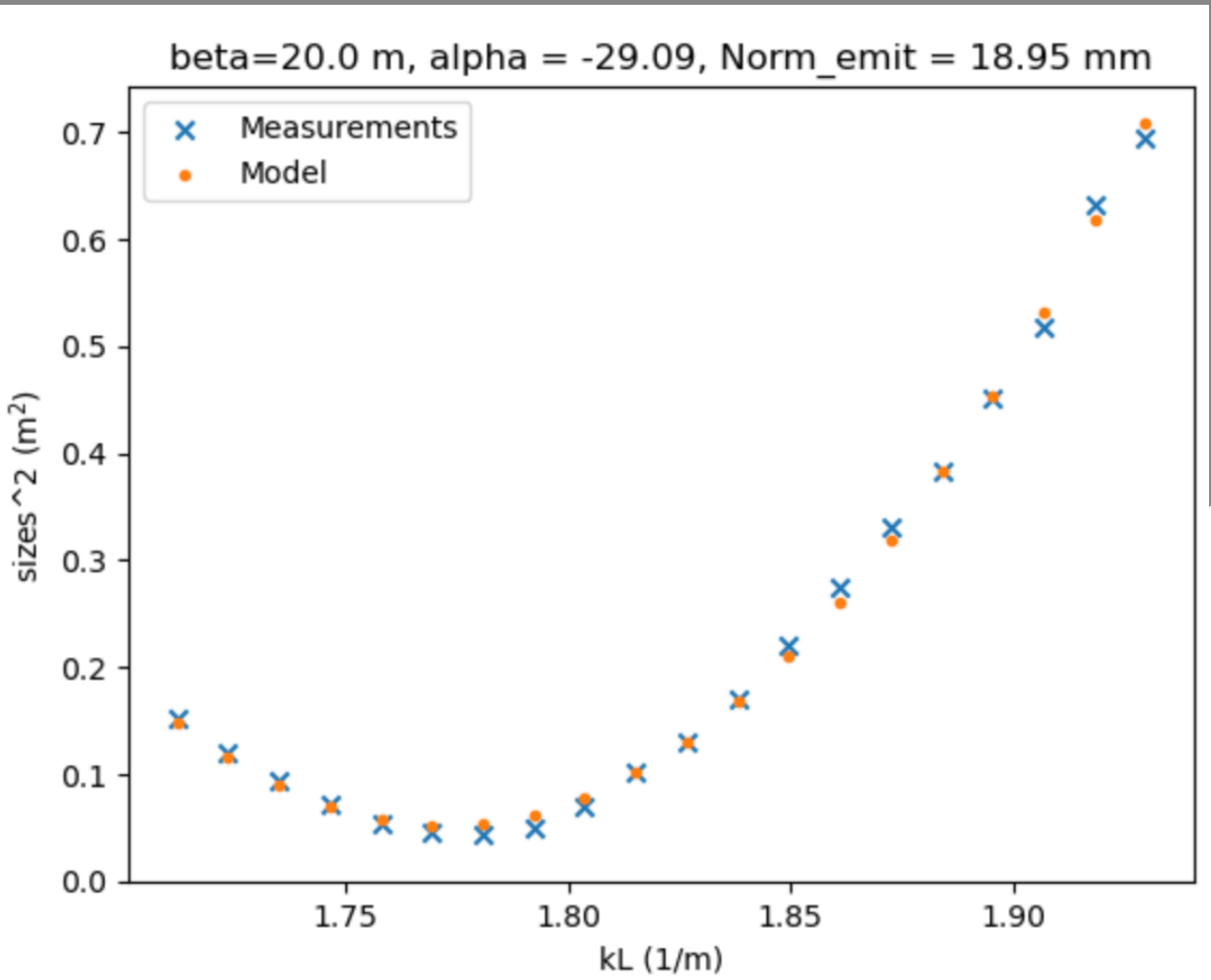
- emittance increase with Q1/Q2 nominal
- To be checked when section phase is set for minimum dispersion



Emittance @ QP7 : X plane

Comments:

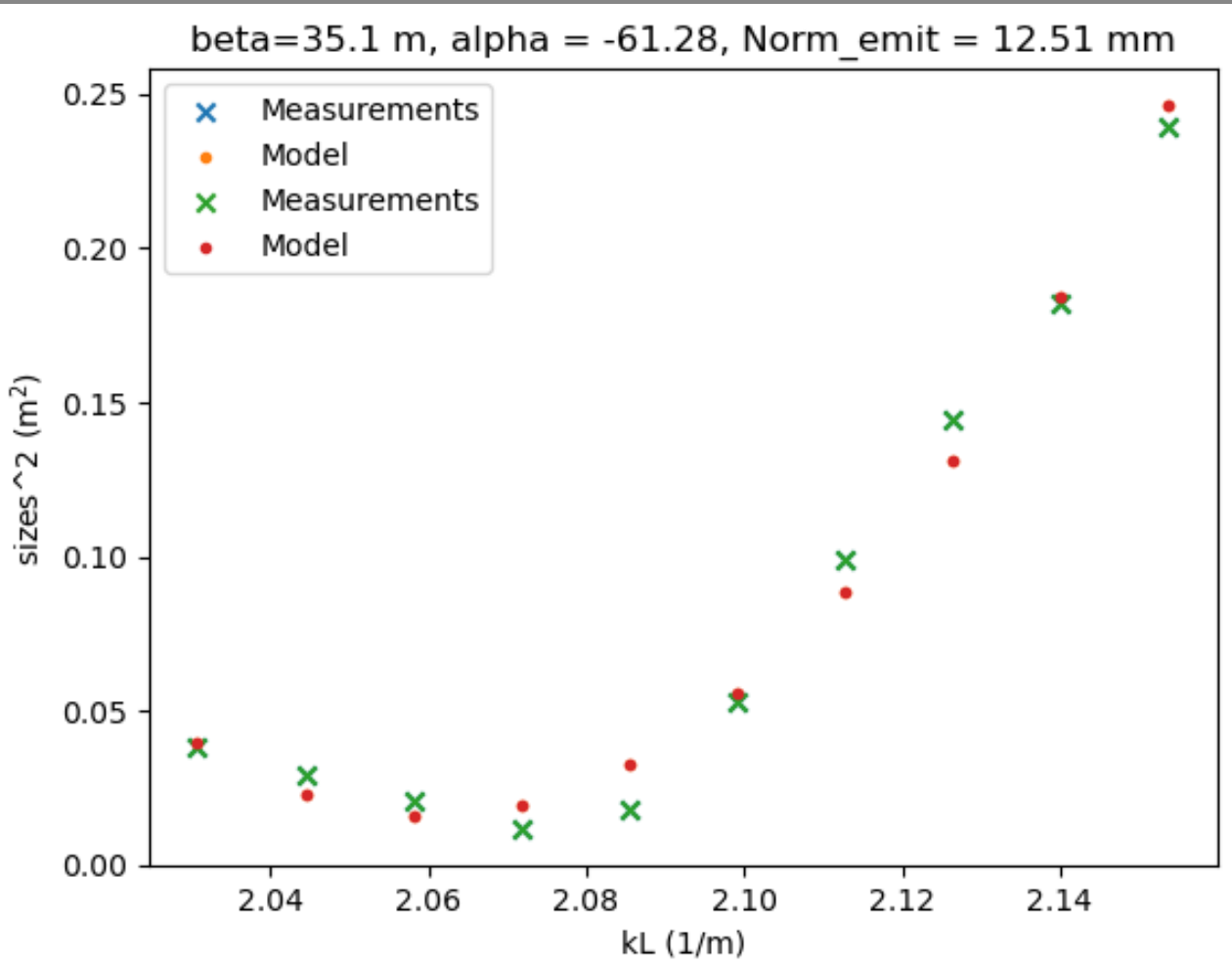
- Emittance around 12 mm mrad
- to be checked :
  - C_H=35.6E-3
  - C_V=36.9e-3



Emittance @ QP7 : Y plane

Comments:

- Emittance around 19 mm mrad
- to be checked :
  - C_H=35.6E-3
  - C_V=36.9e-3

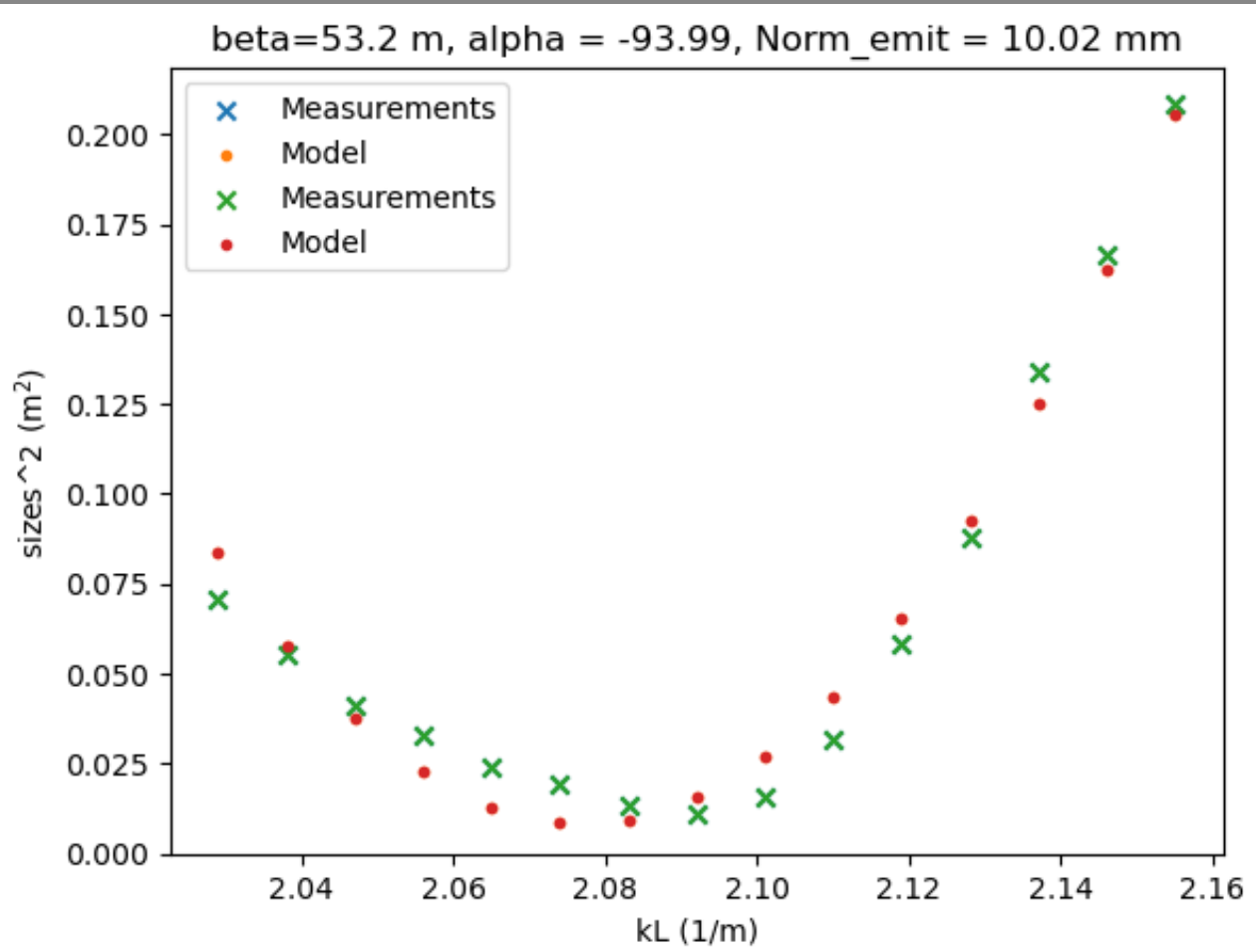


Emittance @ QP7 : X plane new (Iris = 0.5)

Comments:

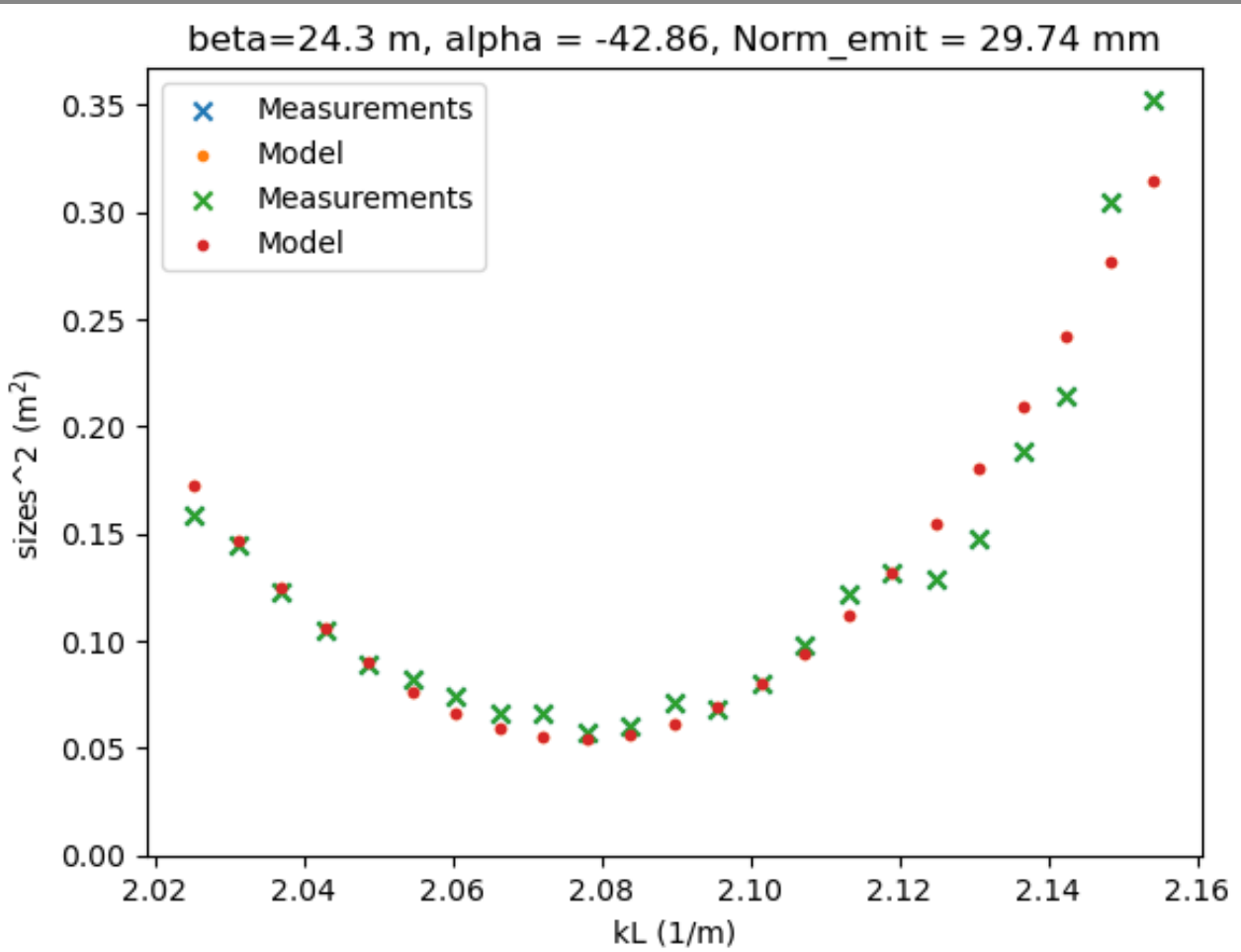
- compatible with previous results
- to be checked :
  - C_H=35.6E-3
  - C_V=36.9e-3

Emittance @ QP7 : X plane new (Iris = 1.3)



Comments:

- compatible with previous results
- to be checked :
  - C_H=35.6E-3
  - C_V=36.9e-3



Emittance @ QP7 : X plane new (Iris = 5.0)

Comments:

- compatible with previous results
- to be checked :
  - C_H=35.6E-3
  - C_V=36.9e-3

to do

- Check emittance With QP1, QP2 at nominal with corrected dispersion
- Try to match emittance between QP3 and QP7
- Try to measure emittance at higher charge
- Estimate an error to the fit (sensitive to the cut on data range)