

Optics Update

January 26, 2018

Where are we now?

- Right now we are trying to find the focus in the data and compare to HRSTrans
- Plots of FWHM for tracking x and y at various z location from the VDC

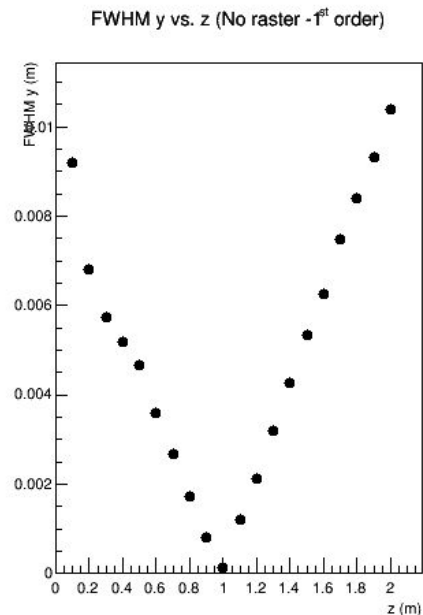
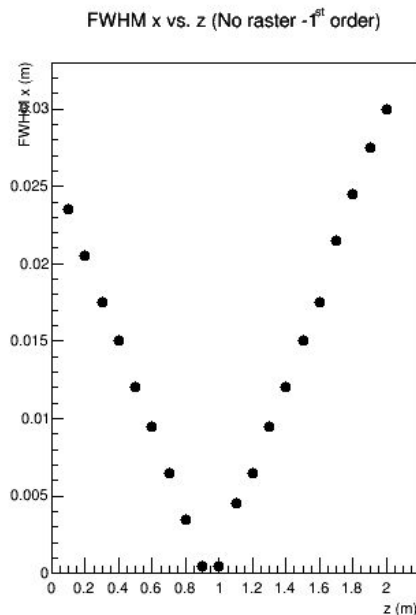
Data (Run 27427)

$$|x_{fp} + 0.05| < 0.15 \ \& \ |y_{fp}| < 0.17$$

$$|\theta_{tg}| < 0.06 \ \& \ |\varphi| < 0.03$$

HRS Trans Tune

- I am using a tune $z = 1.0$ m downstream
- Increment z positions by 0.1 m from VDC to 2 m downstream
- Plotting FWHM for x and y consistent with this tune
- What I would expect to see - the widths minimize at the same point



HRS Trans

- First order - raster on
- Broadens out

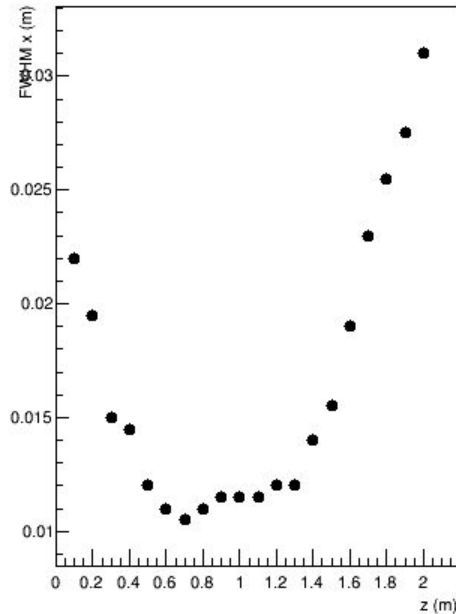
With my tune (1.0 m downstream)

$$(x|x) = -3.09 \quad (x|\theta) = -0.02$$

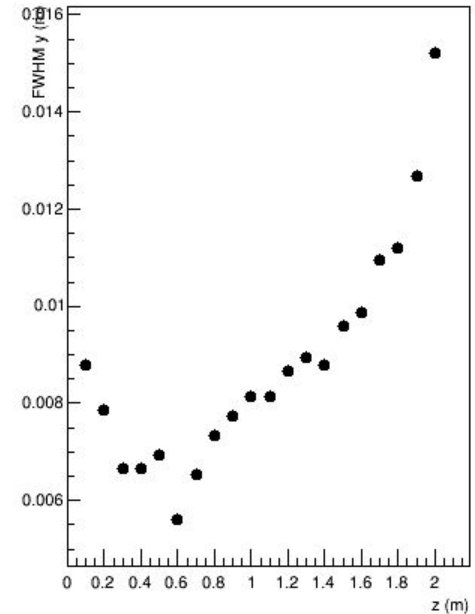
$$(y|y) = 2.51 \quad (y|\phi) = 0.01$$

- Focus moves ~ 0.6 m downstream VDC

FWHM x vs. z (Raster 1st order)

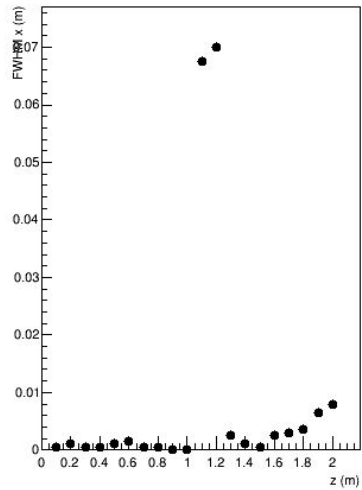


FWHM y vs. z (Raster 1st order)

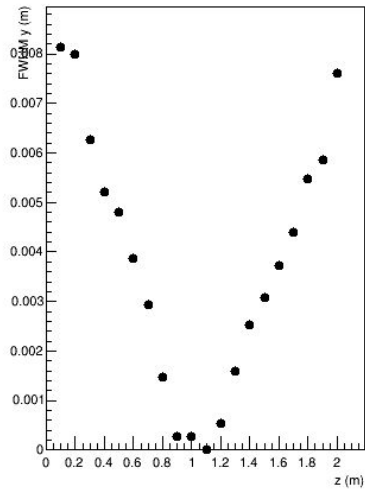


HRS Trans (2nd Order)

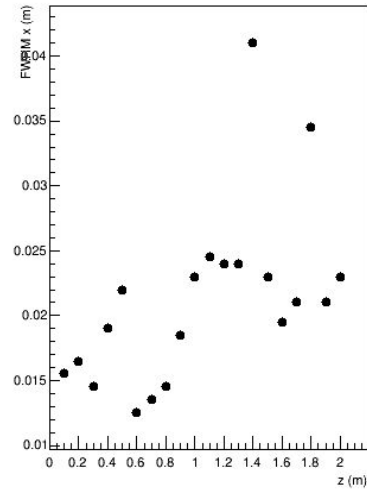
FWHM x vs. z (No Raster 2nd order)



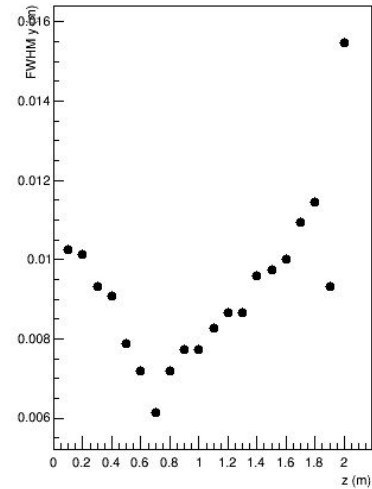
FWHM y vs. z (No Raster 2nd order)



FWHM x vs. z (Raster 2nd order)

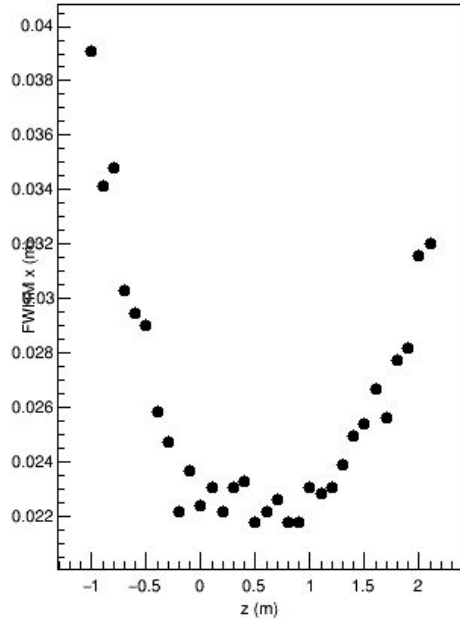


FWHM y vs. z (Raster 2nd order)

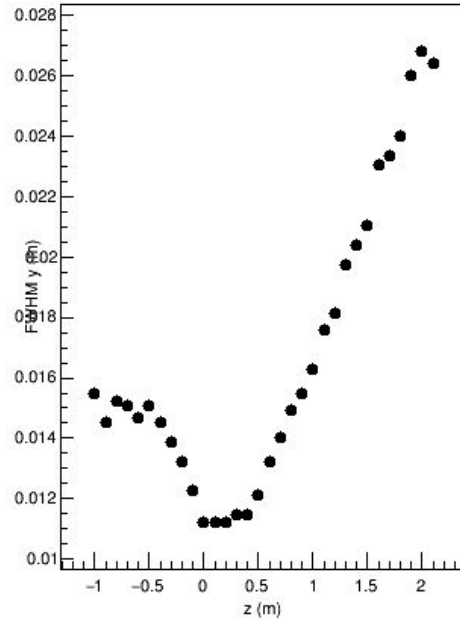


Data

FWHM x vs. z



FWHM y vs. z



- Data - rastered beam
- Projections to negative z to -1.0m from VDC
- Focus is somewhere close to the VDC