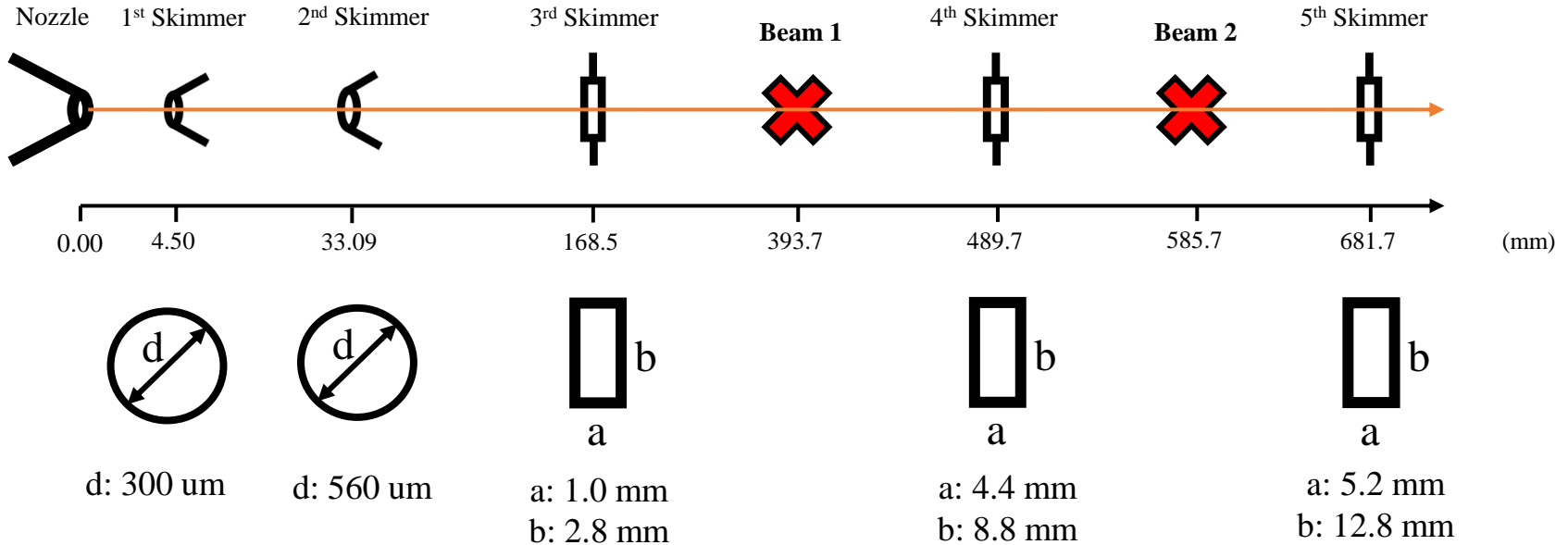


# CI Update

O. Stringer, S. Sethi & H. Zhang



# Results – TwoBeam P4 (192mm)



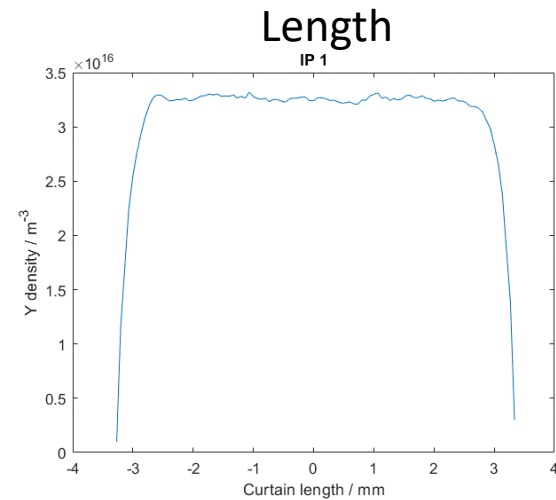
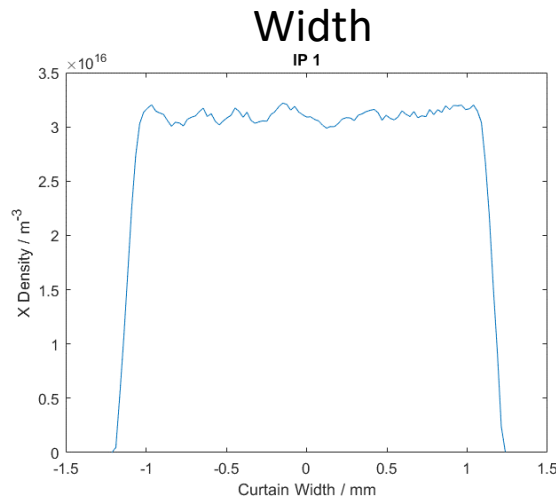
Criteria	Density / # m <sup>-3</sup>	Length / mm	Width / mm	Variation / %	BG Pressure / mbar	Density / # m <sup>-3</sup>	Length / mm	Width / mm	Variation / %	BG Pressure / mbar
Optimised Value	$5.15 \times 10^{16}$	6.32	2.27	1.48	$1.48 \times 10^{-9}$	$2.32 \times 10^{16}$	9.37	3.37	1.48	$8.68 \times 10^{-9}$

Beam 1 conditions

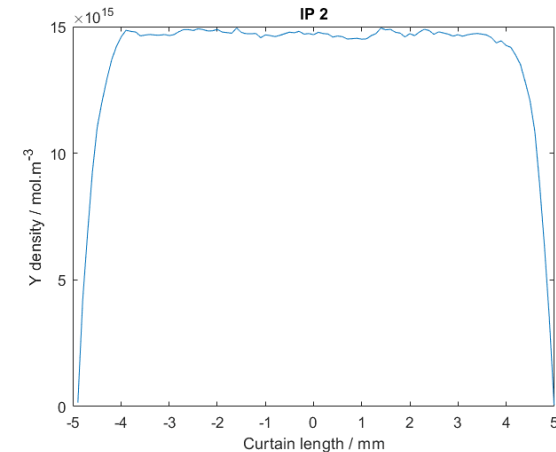
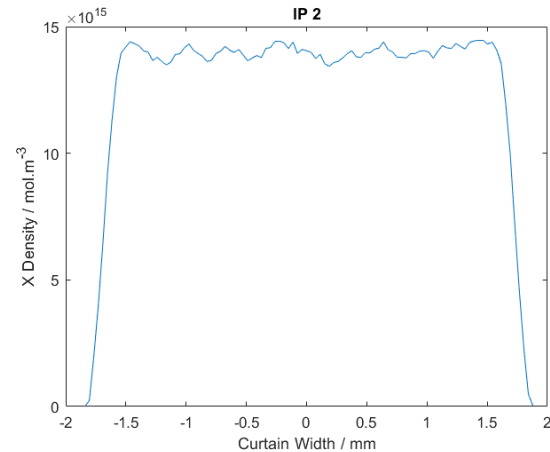
Beam 2 conditions

# Results – TwoBeam P4 (192mm)

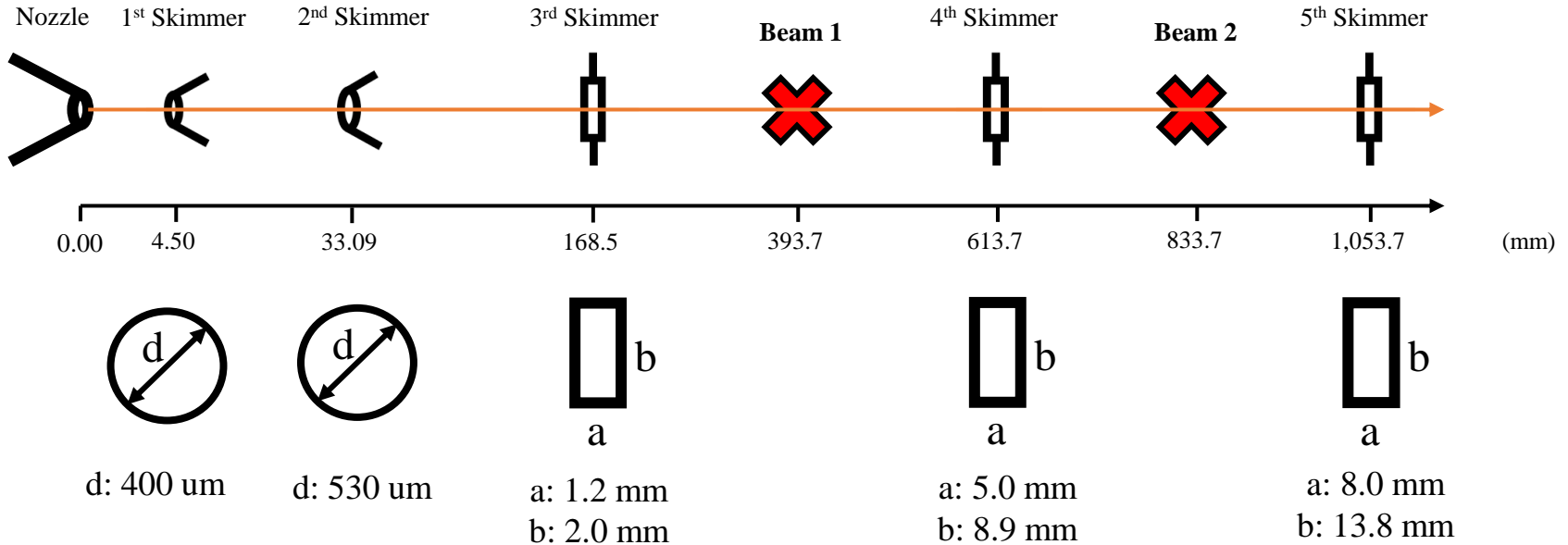
Beam 1



Beam 2



# Results – TwoBeam P6 (440mm)



Criteria	Density / # m <sup>-3</sup>	Length / mm	Width / mm	Variation / %	BG Pressure / mbar	Density / # m <sup>-3</sup>	Length / mm	Width / mm	Variation / %	BG Pressure / mbar
<b>Optimised Value</b>	5.15 × 10 <sup>16</sup>	4.69	2.69	2.02	1.38 × 10 <sup>-9</sup>	1.15 × 10 <sup>16</sup>	9.99	5.68	1.83	1.24 × 10 <sup>-8</sup>

Beam 1 conditions

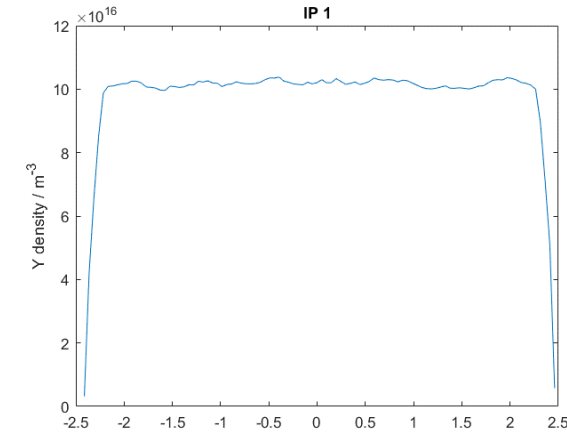
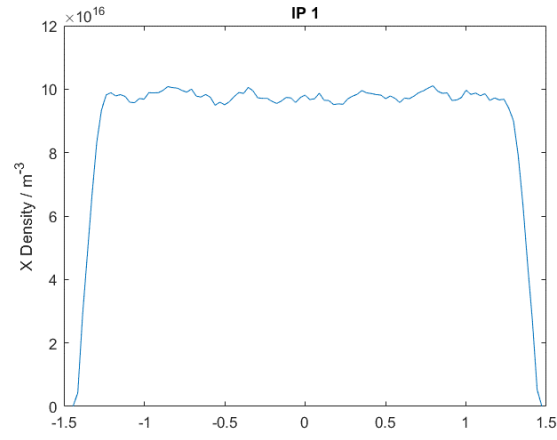
Beam 2 conditions

# Results – TwoBeam P6 (440mm)

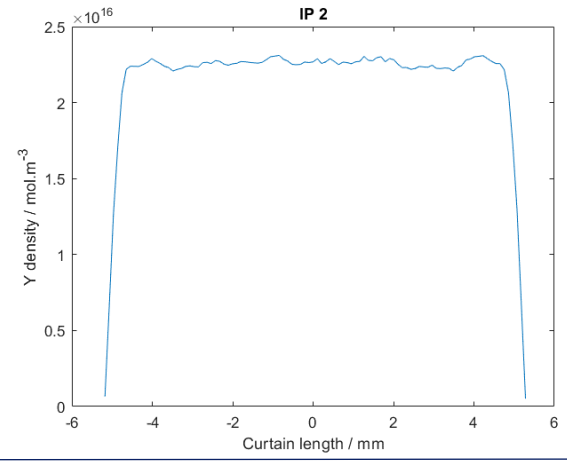
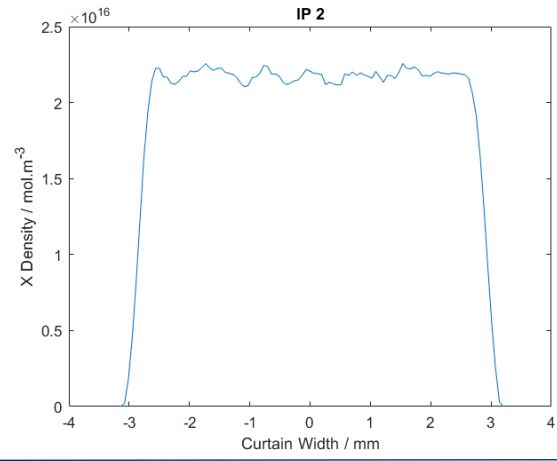
Beam 1

Width

Length



Beam 2



# LHC Experiment Plan

- Now trained with all permissions for gas injection and LHC data taking.
- Still sorting out analysis process with VPC
- End goal – Determine cross sections for injection, ramp energies and top energy.
- Time?

# LHC Experiment Plan

Experiment	Reason	Minimum ideal time	Completed?
Intensifier Gain	Ensure photon counting & image stacking agree (top energy)	~2 hours	Data taken
Frame time	Ensure photon counting & image stacking agree (top energy)	~2 hours	No
Nominal run	-Compare run by run consistency -Compare intensity degradation (start vs end)	5+ full fills	Ongoing
Injection	-Attempt to determine time to signal over intensities	3+ injections?	Ongoing
Ramp	-Signal & noise differences between 450 GeV & 6.8 TeV	3+ ramps?	Ongoing
Background	-Dark Counts -Losses -Synchrotron Radiation -Residual gas fluorescence	Ideally 2+ full fills per point (consistent?)	Started

**Approx. 14+ fills**

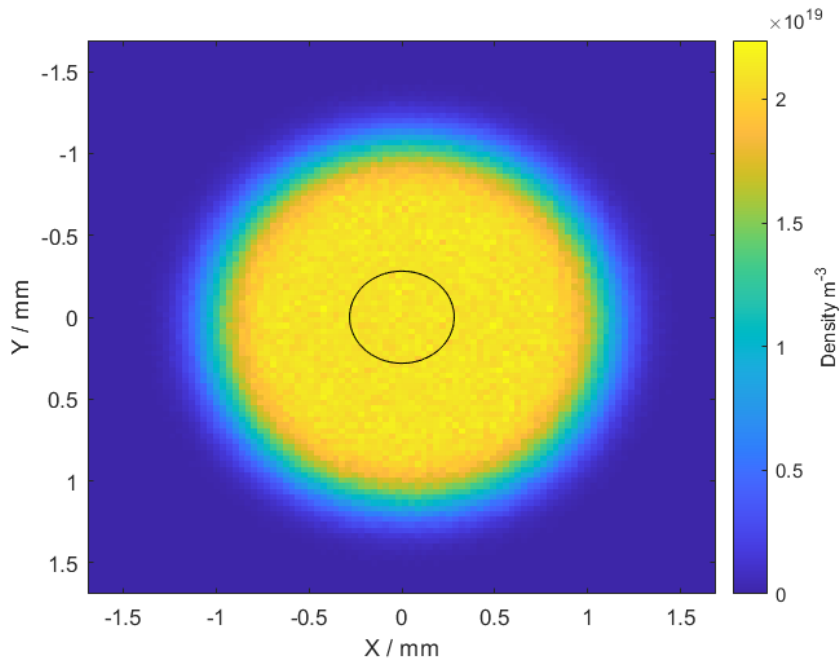
# Details



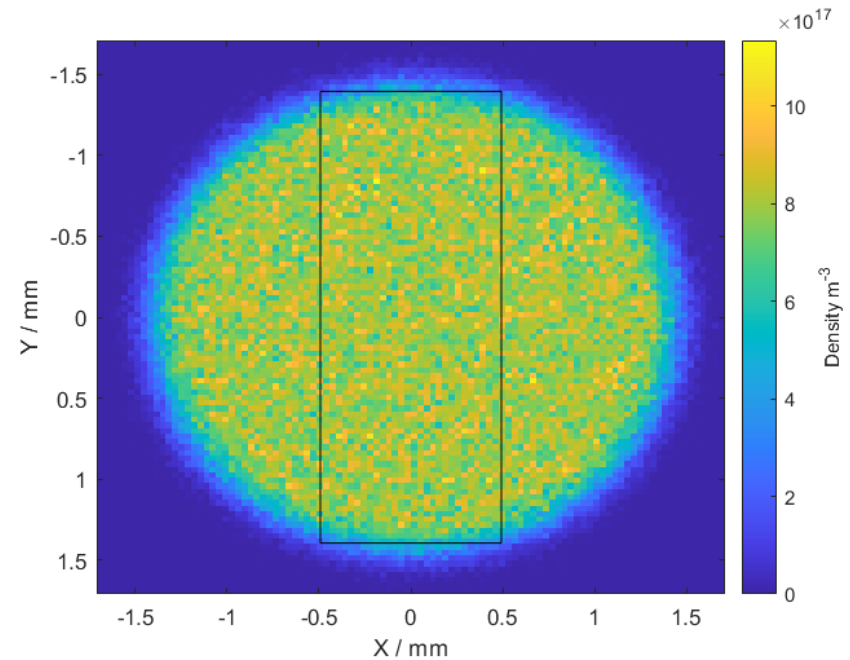


# Results – TwoBeam P4 (192mm)

## Skimmer 2

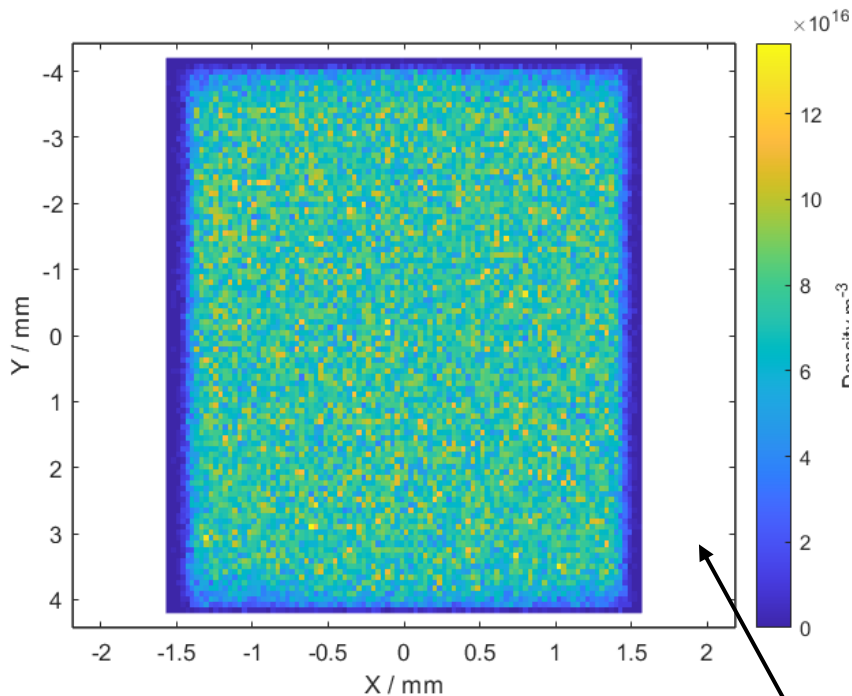


## Skimmer 3

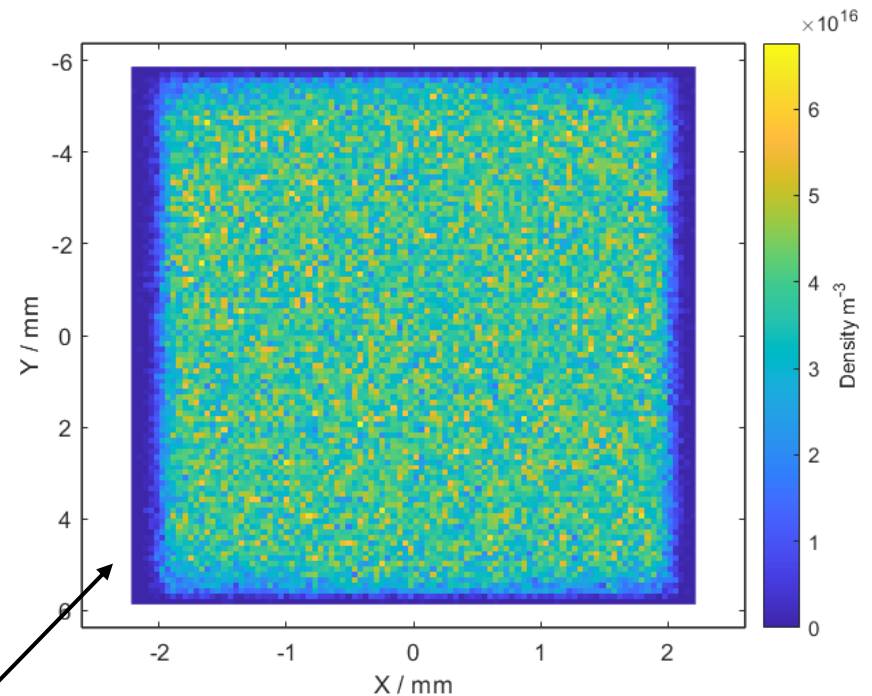


# Results – TwoBeam P4 (192mm)

## Skimmer 4



## Skimmer 5

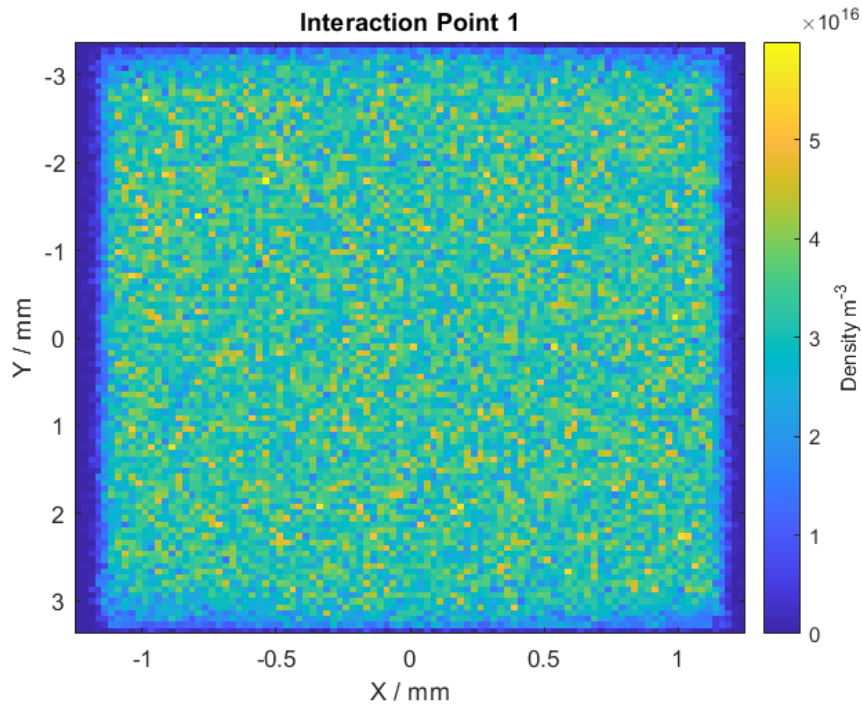


Slightly unoptimised Skimmers 4 & 5 (white regions). Dedicated study closer to these conditions could resolve properly.

# Results – TwoBeam P4 (192mm)

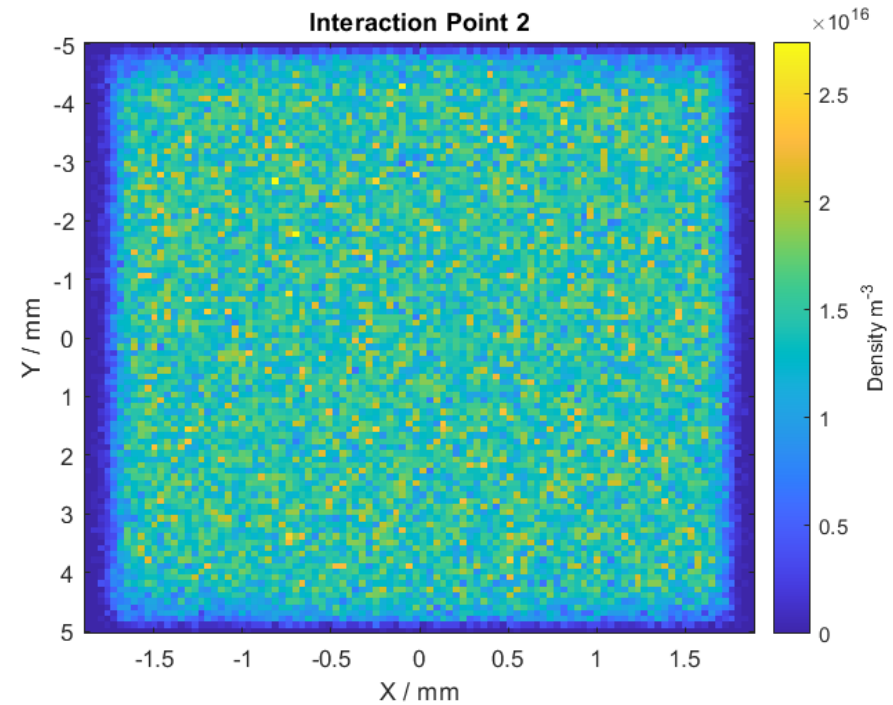
## Beam 1 IP

### Interaction Point 1



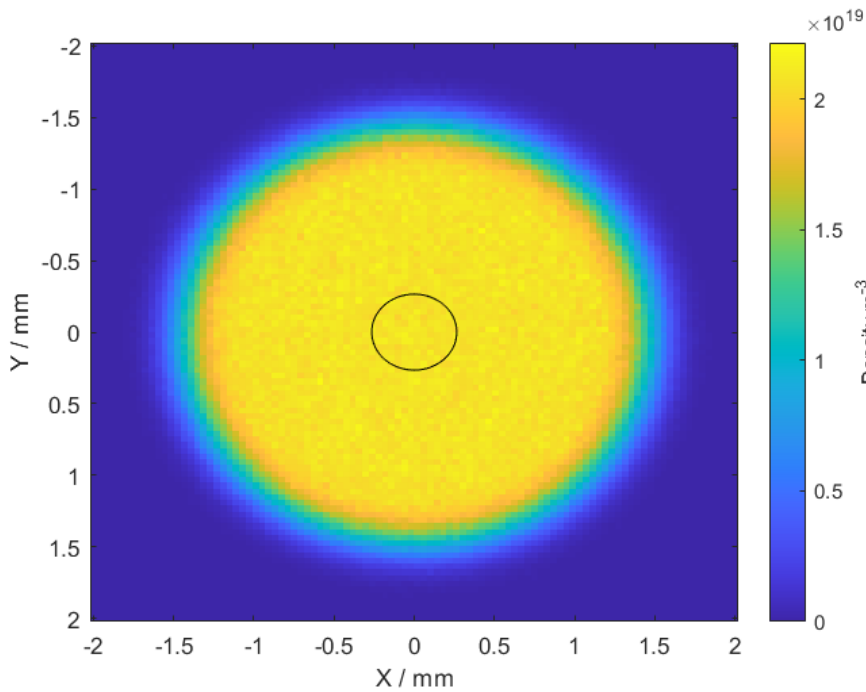
## Beam 2 IP

### Interaction Point 2

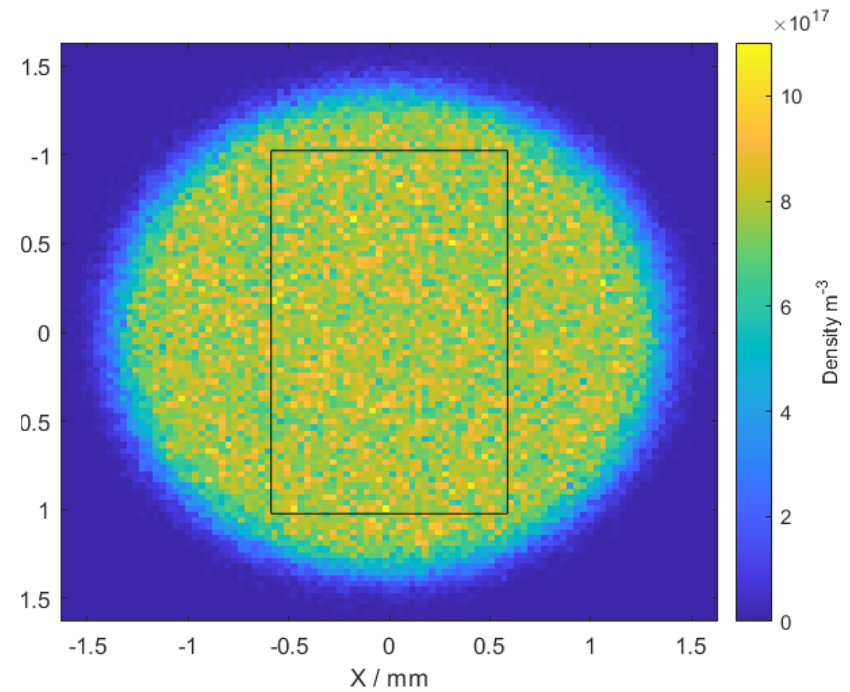


# Results – TwoBeam P6 (440mm)

## Skimmer 2

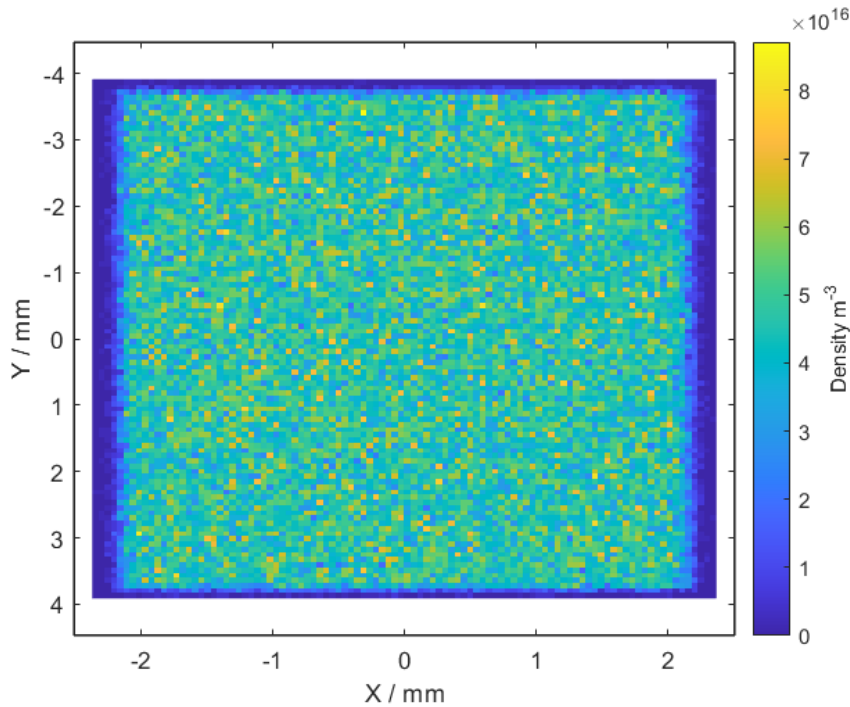


## Skimmer 3

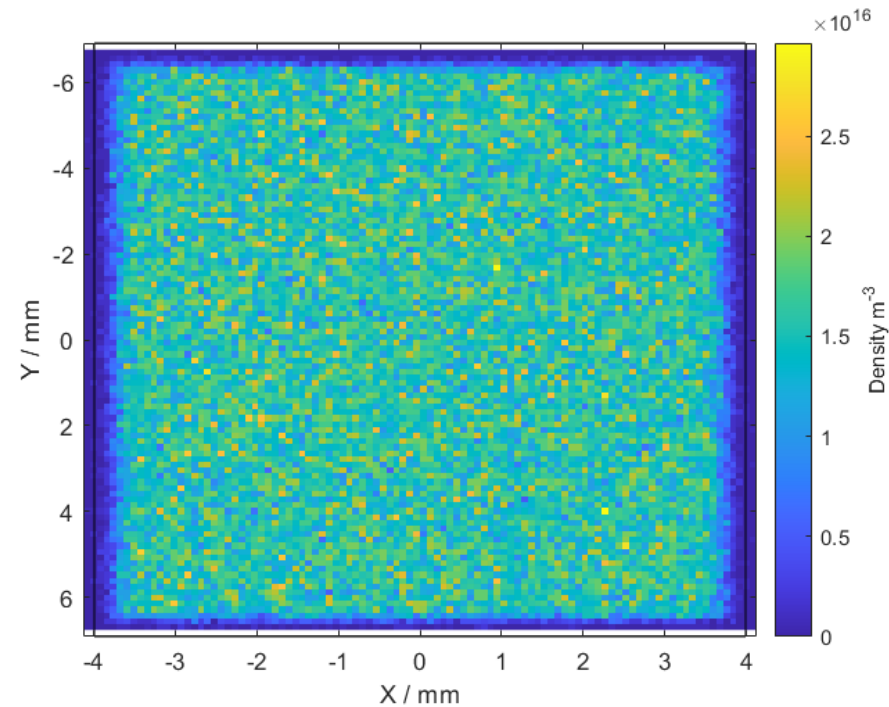


# Results – TwoBeam P6 (440mm)

## Skimmer 4

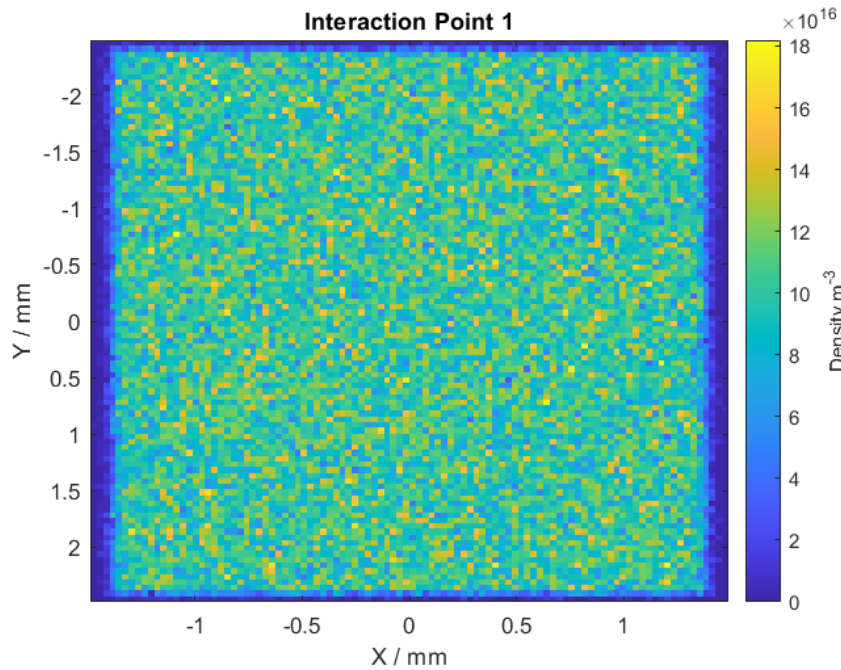


## Skimmer 5



# Results – TwoBeam P6 (440mm)

## Beam 1 IP



## Beam 2 IP

