

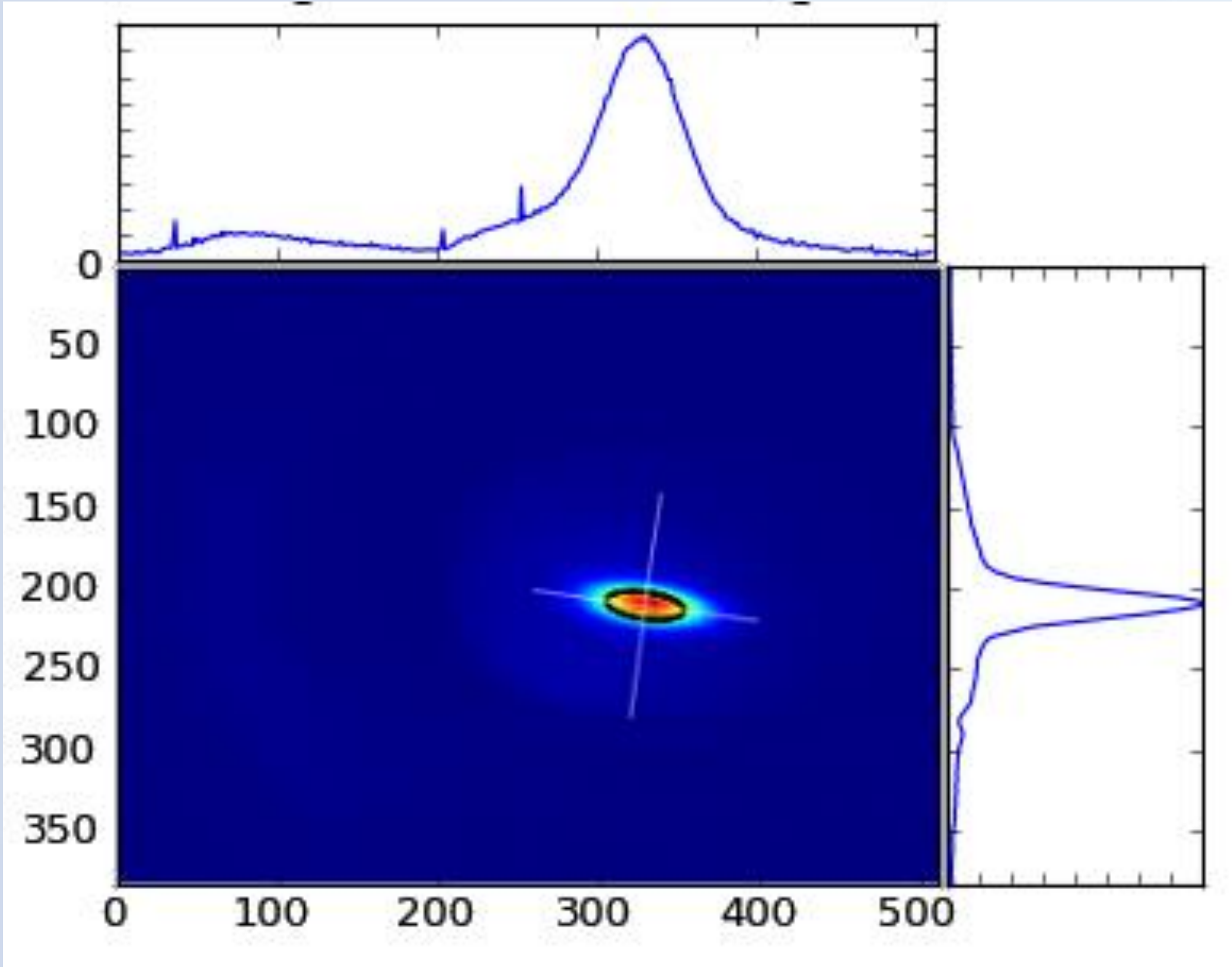
# STORAGE RING INJECTOR DIAGNOSTICS USING SYNCHROTRON RADIATION.

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The state of the Diamond injector can be passively monitored using beam profile measurements of synchrotron radiation from bending magnets.

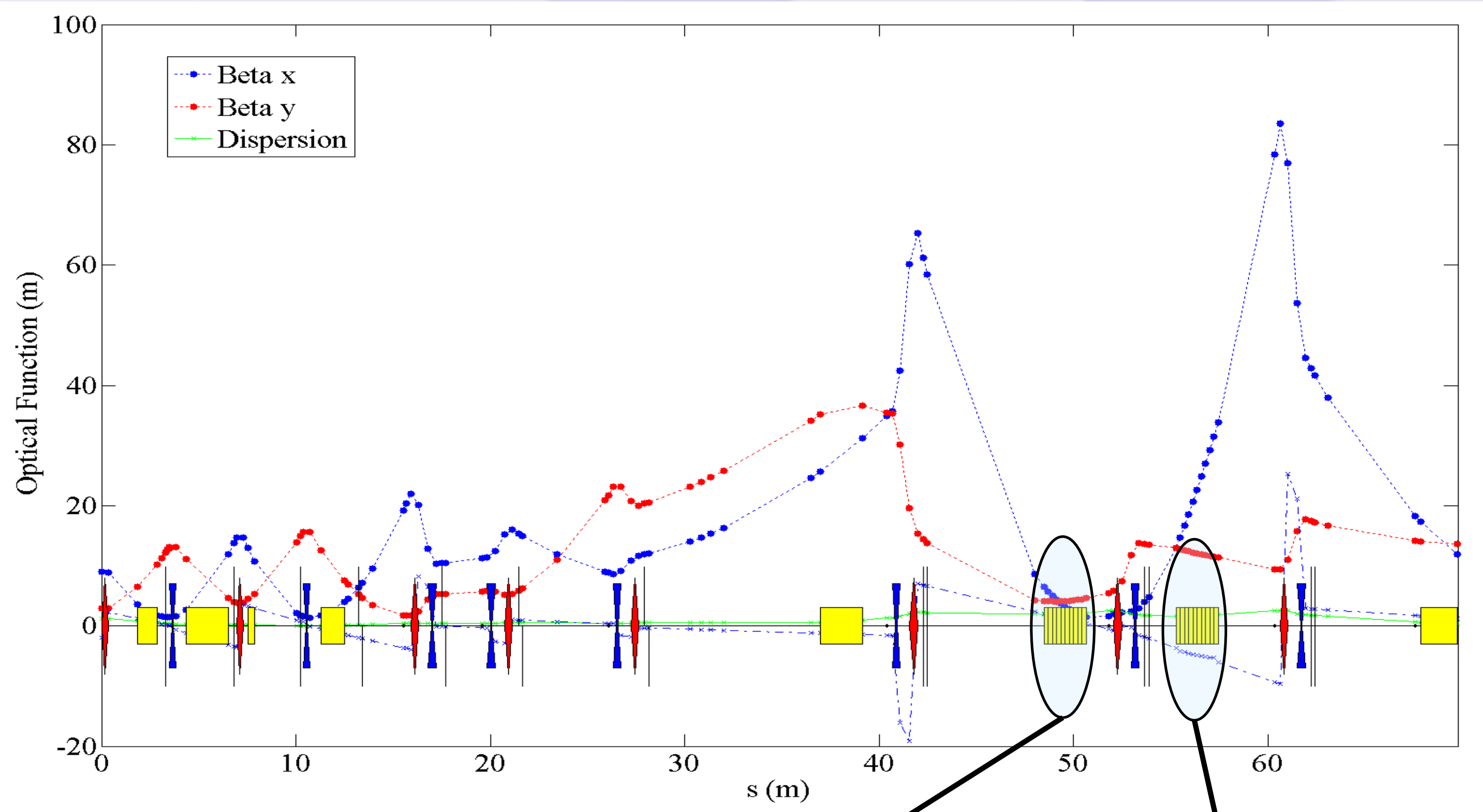
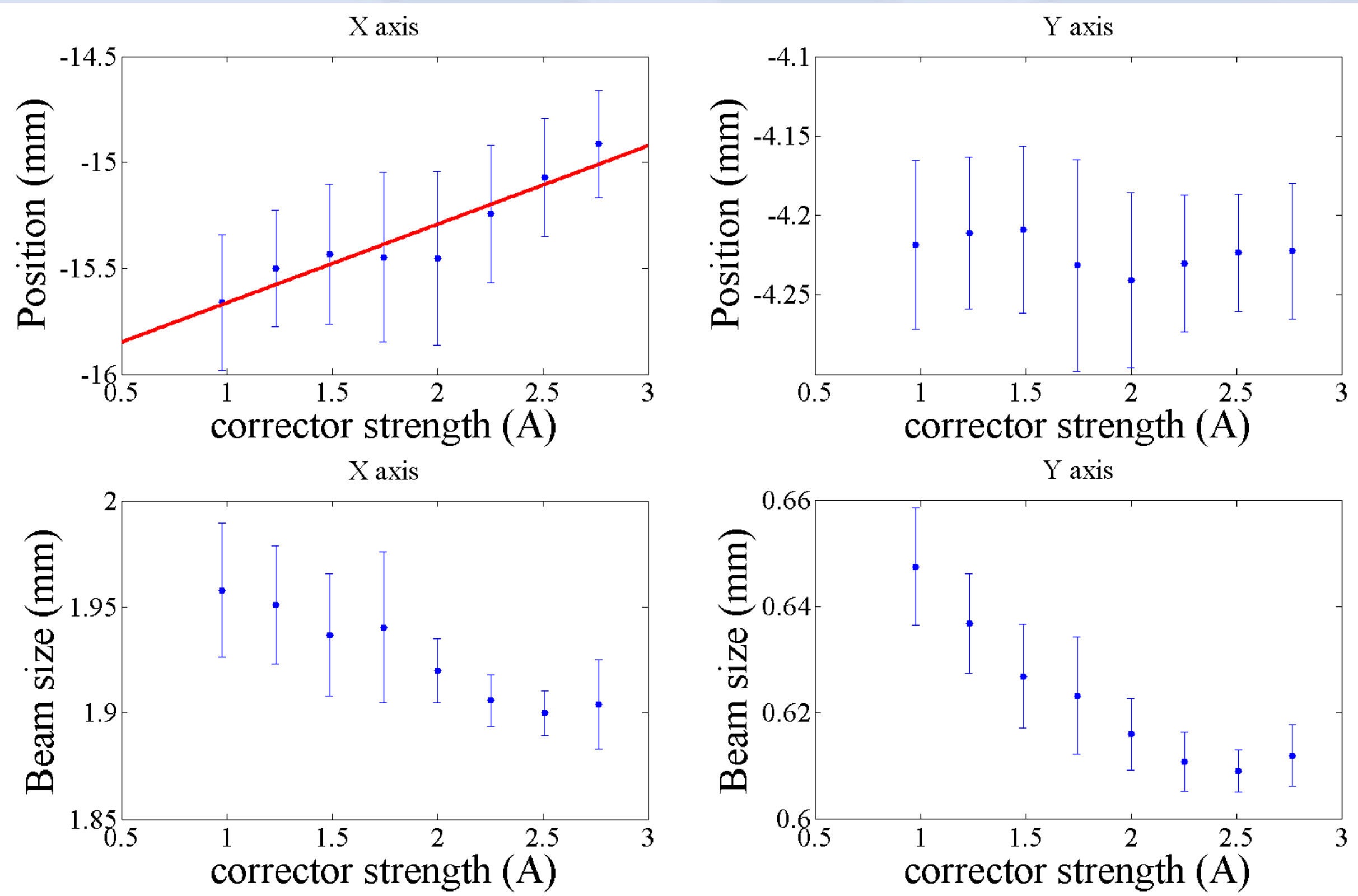
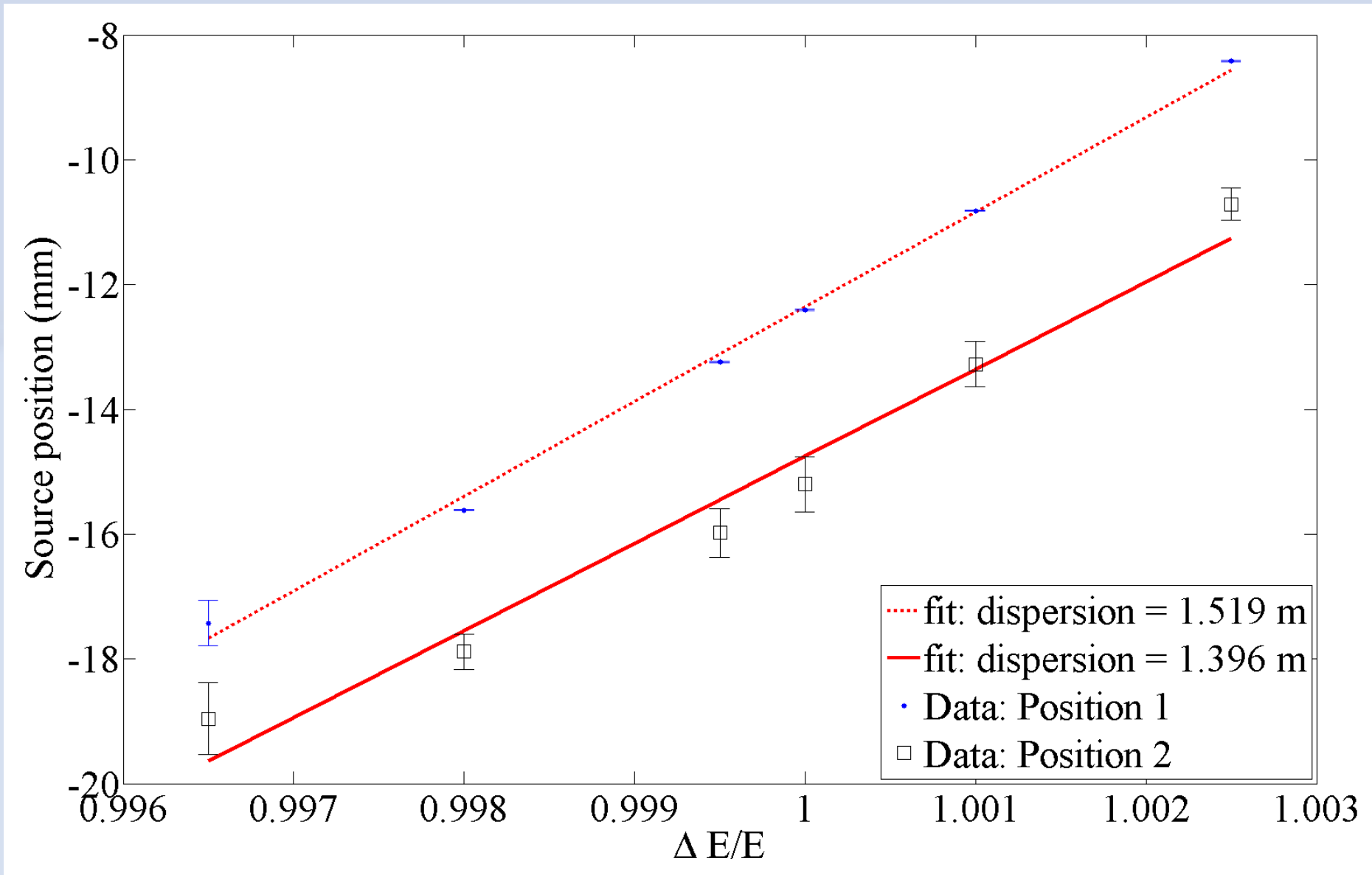
## Image analysis

Using a numerical fit we are able to retrieve key parameters like beam position, size and tilt angle from every injection.



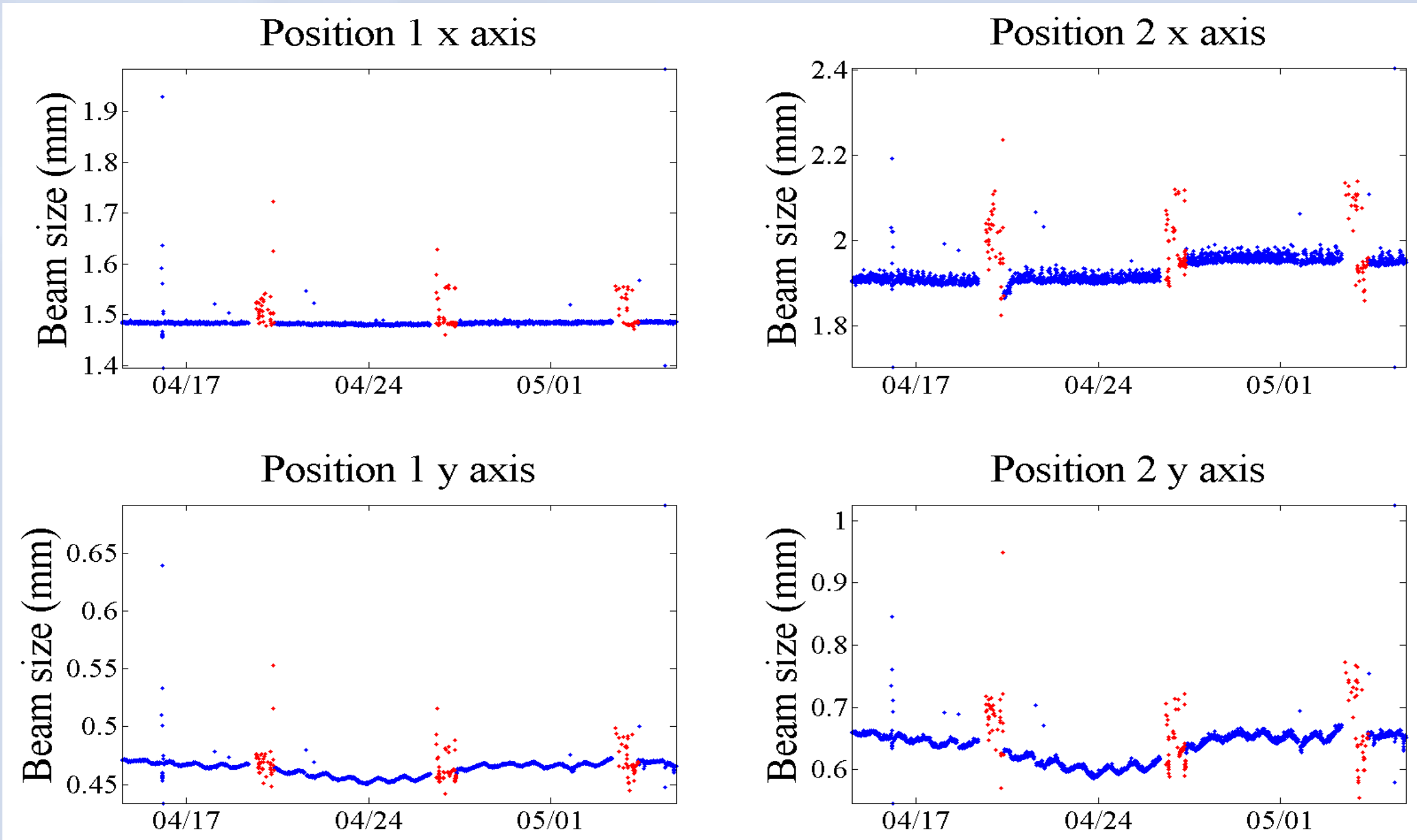
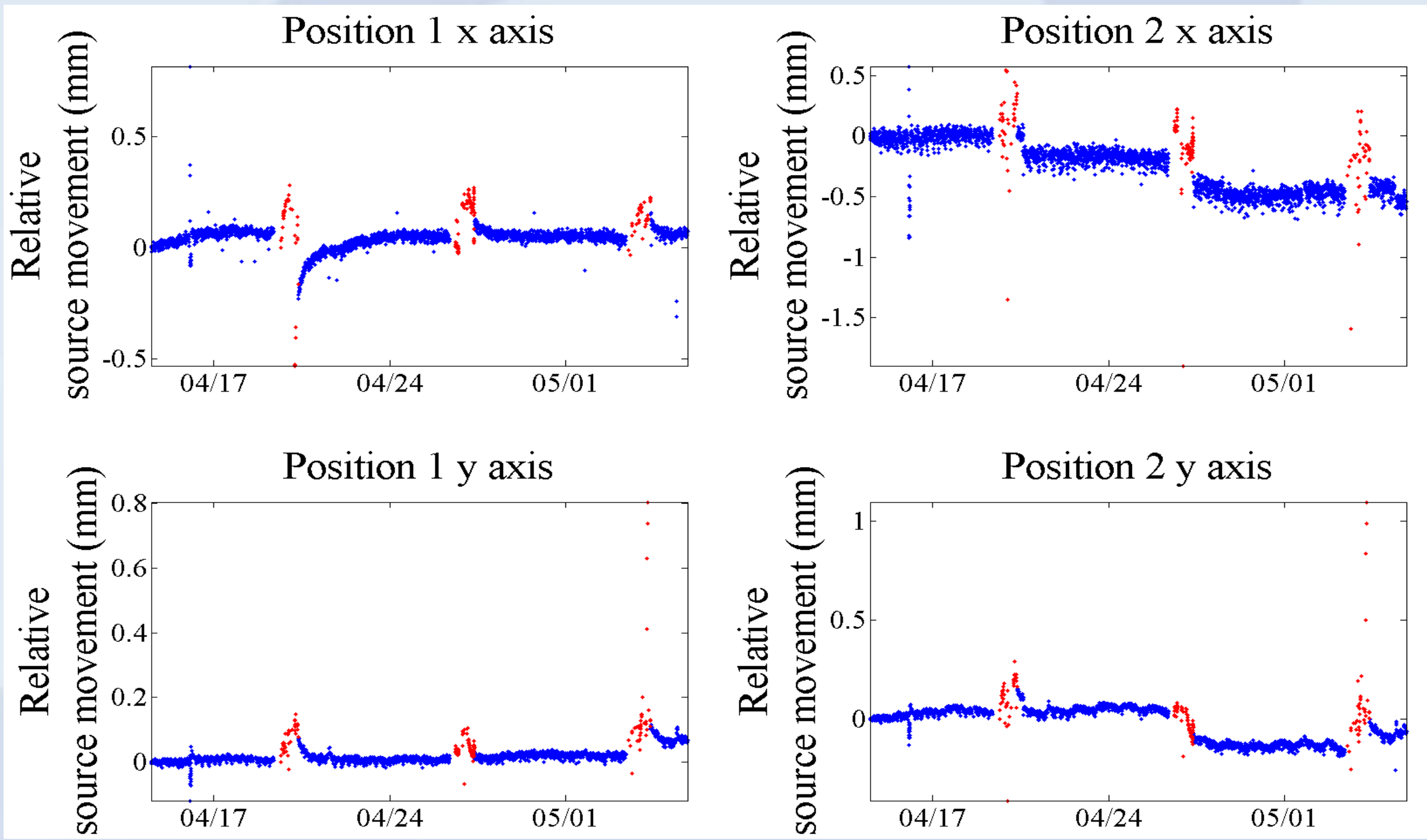
## Characterisation

Dedicated experiments have been done to measure the dispersion and verify linear response with source position movement



## Historical trends

The image analysis enables us to gather longer term trends to monitor for any changes during top-up operation and also to better understand any variability of the injector.



All our measurements have been compared with a model of the transfer line. These results will help guide further work.

	Position 1		Position 1	
	Data	Model	Data	Model
$\sigma_x$ (mm)	1.25	1.56	1.76	2.24
$\sigma_y$ (mm)	0.46	0.81	0.65	1.38
$\eta$ (m)	1.52	1.99	1.40	1.69
$\beta_x$ (m)	2.6	3.2	13.1	24.8
$\beta_y$ (m)	123.2	4.1	230.3	12.1

