

Reproducibility of the Rate Settings

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1 Collimator Settings

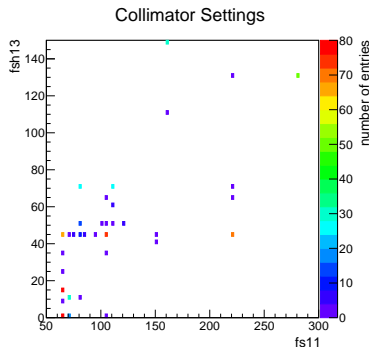
2 Stability of the Flux

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Section 1

Collimator Settings

Collimator Settings

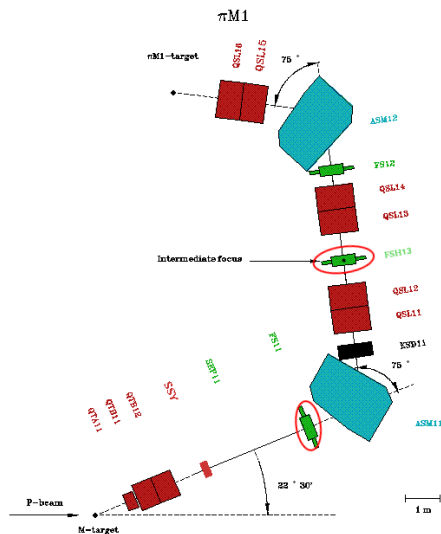


fs11	fsh13	flux [kHz/cm ²]
65	0.5	3
65	15	20
65	45	60
105	45	200
220	45	2000
280	130	500

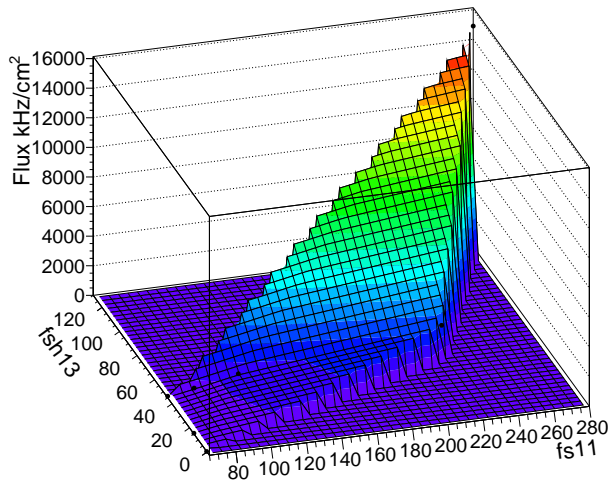
Table : aimed fluxes for the collimator settings in Aug/Oct 2015

- plot shows all settings we ever saved in May/Aug/Oct 2015
- collimators:
 - ▶ fs11: in front of first bending magnet,
 - ▶ fsh13: in the intermediate focus point between the two bending magnet
- reddish and green points are the settings we chose for the rate scans in Aug/Oct 2015

Beam Area



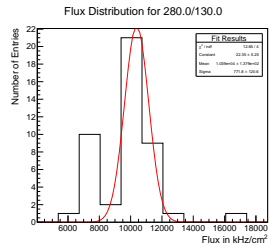
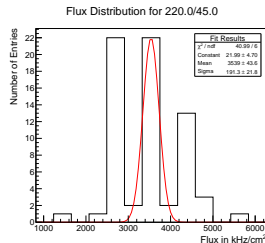
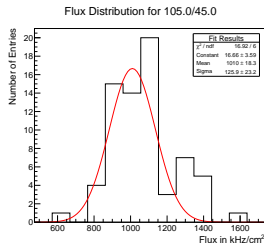
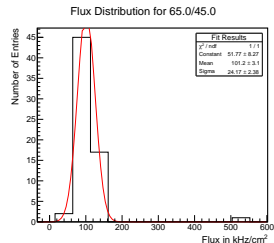
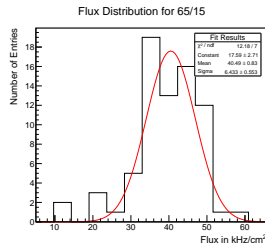
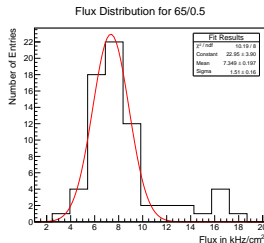
Flux Vs. Collimators



Section 2

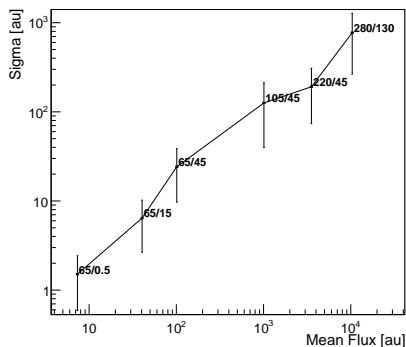
Stability of the Flux

Flux Distributions for all runs

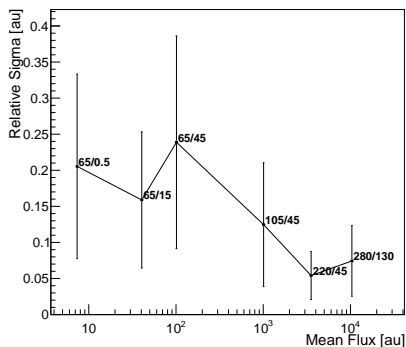


Flux Deviations

Flux Deviations



Flux Deviations



- huge error bars due to uncertainties caused by:
 - ▶ wrongly entered fast-OR rates (beam stop, typos)
 - ▶ inconsistencies of different setups
 - ▶ different mask sizes (Gaussian beam profile)

Fluxes Within One Rate Scan

FS11/FSH13	65/0.5	65/15	65/45	80/45	105/45	220/45	280/130
	13.6	44.5	107.6	392.1	1114.5	3335.7	10090.3
	14.1	44.6	107.6	406.6	1093.6	3366.3	10146.8
	14.8	45.0	108.2	392.5	1117.3	3364.9	10235.6
	15.8	44.9	107.9	411.0	1100.8	3359.3	
		45.3	108.5	395.6	1123.5	3380.2	
		46.1	109.8		1108.2	3376.5	
Mean	14.6	45.1	108.3	399.6	1109.6	3363.8	10157.6
Sigma	0.8	0.5	0.8	7.8	10.1	14.4	59.8

Table : RunPlan 8 in October 2015 (II6-B2 and poly-D @ -1000 V)

FS11/FSH13	65/0.5	65/15	65/45	80/45	105/45	220/45	280/130
	16.7	47.1	110.9	411.5	1131.3	3405.8	10190.0
	16.1	46.2	105.6	399.5	1109.2	3395.9	10180.3
	16.8	46.9	110.3	416.8	1139.4	3420.6	6143.1
	17.4	46.8	111.2	400.6	1122.3	3423.8	
		47.5	110.5	417.1	1000.9	3444.1	
		47.9	110.8	403.9	1125.9	3444.6	
Mean	16.8	47.1	109.9	408.2	1104.8	3422.5	8837.8
Sigma	0.5	0.5	1.9	7.3	47.4	18.0	1905.4

Table : RunPlan 10 in October 2015 (II6-B2 and poly-D @ 1000 V)

Section 3

Conclusion

Conclusion

- fluxes during a single rate scan are very stable and reproducible within a couple percent
- fluxes for different setup may vary within the order of 10 %
- with the new setup the rates are saved automatically during the whole run → more accurate measurement