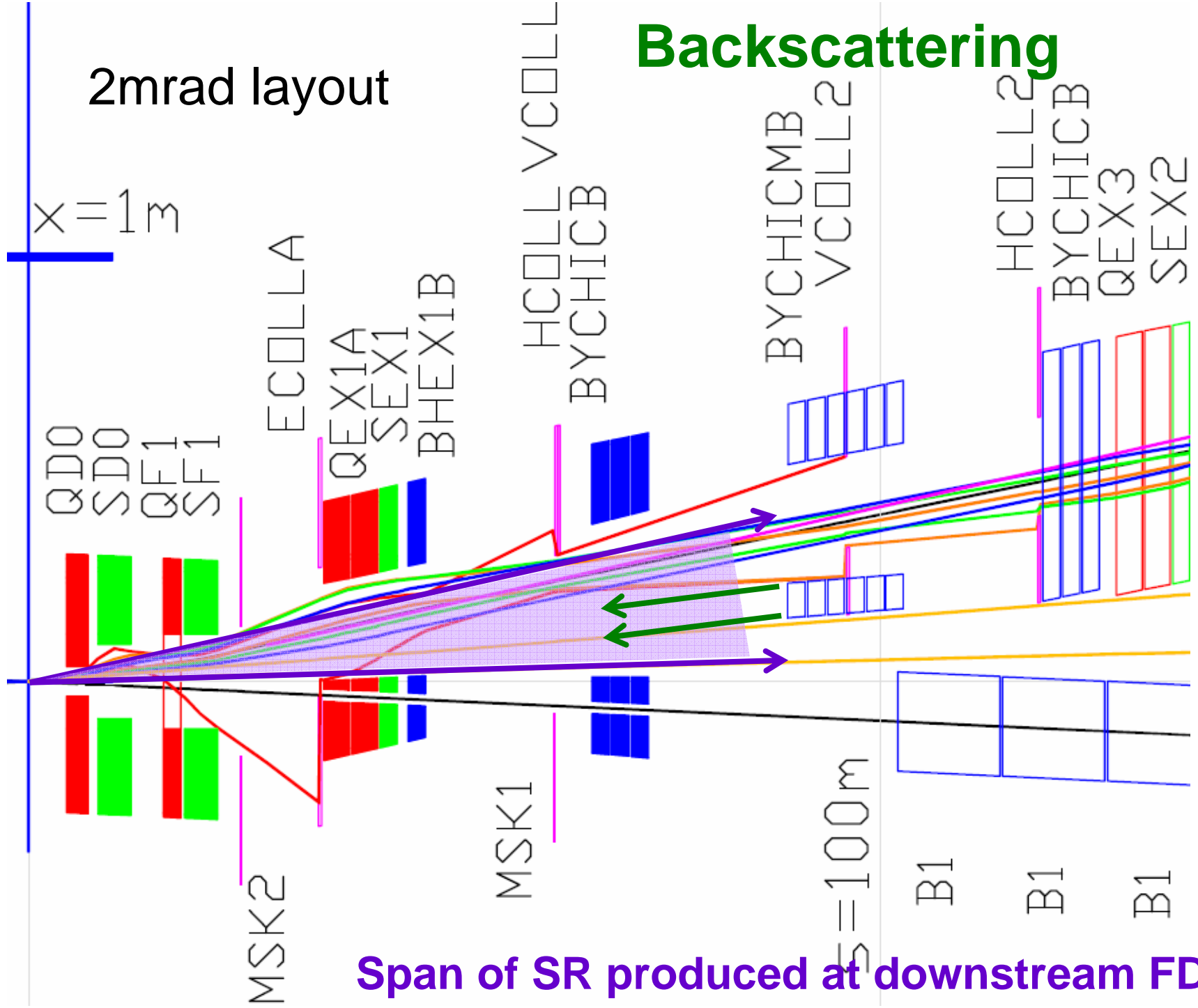


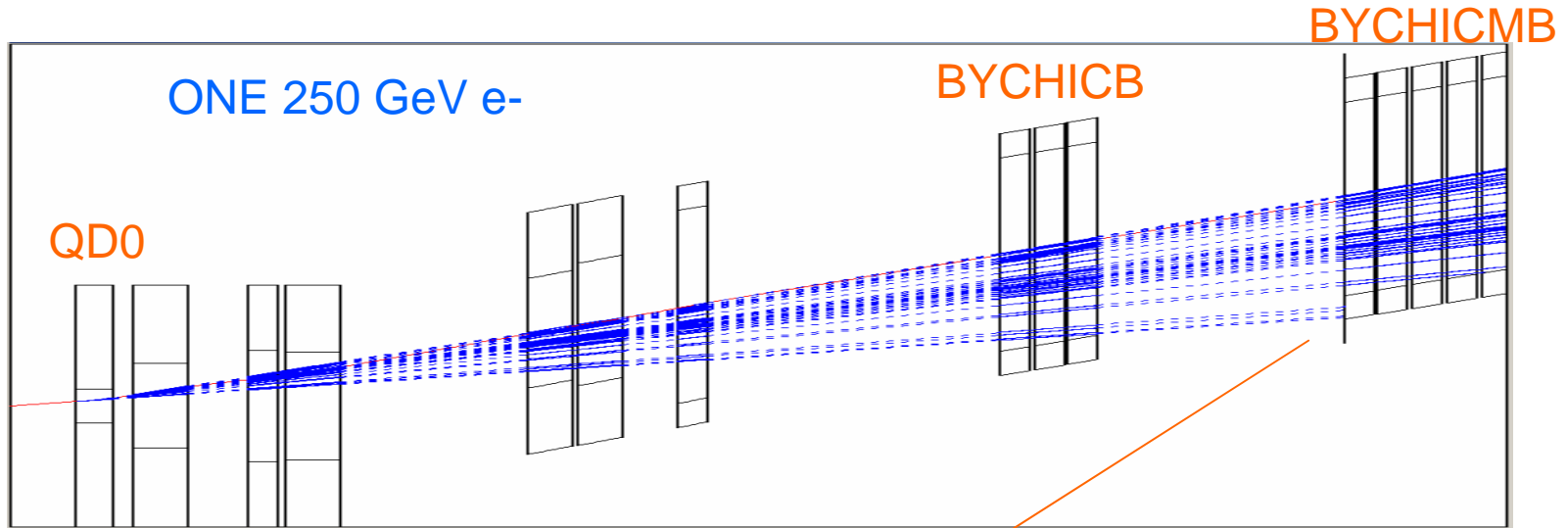
Synchrotron radiation from 2mrad FD and backscattering from extraction line elements

T. Maruyama and A. Seryi

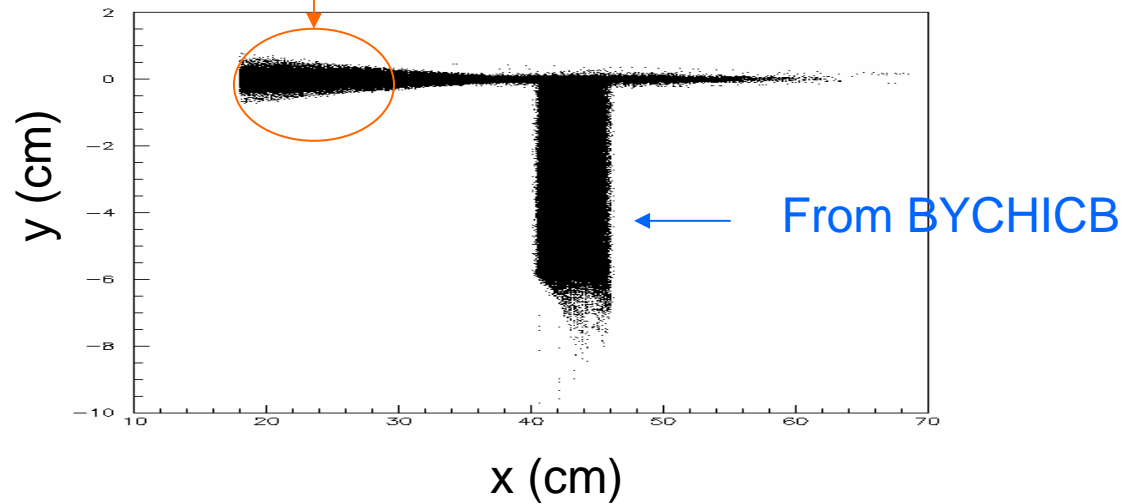


Span of SR produced at downstream FD

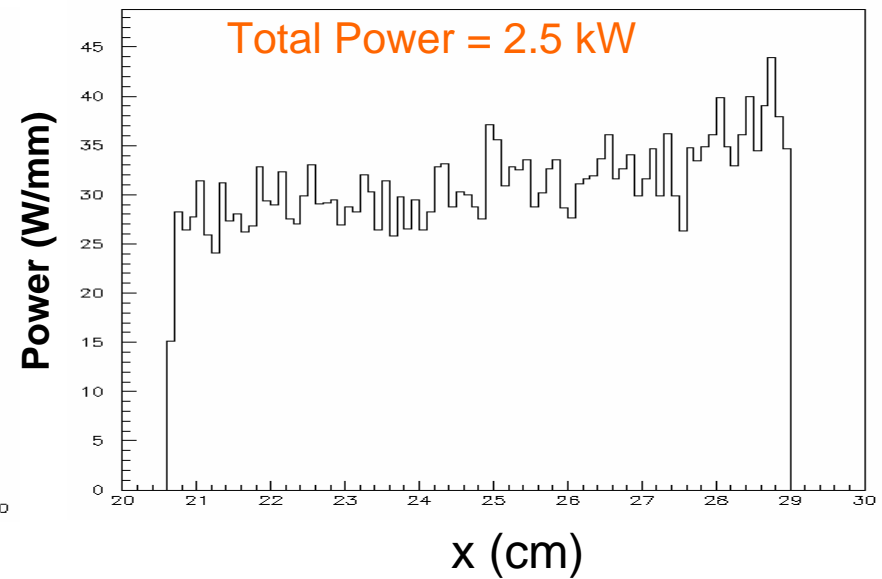
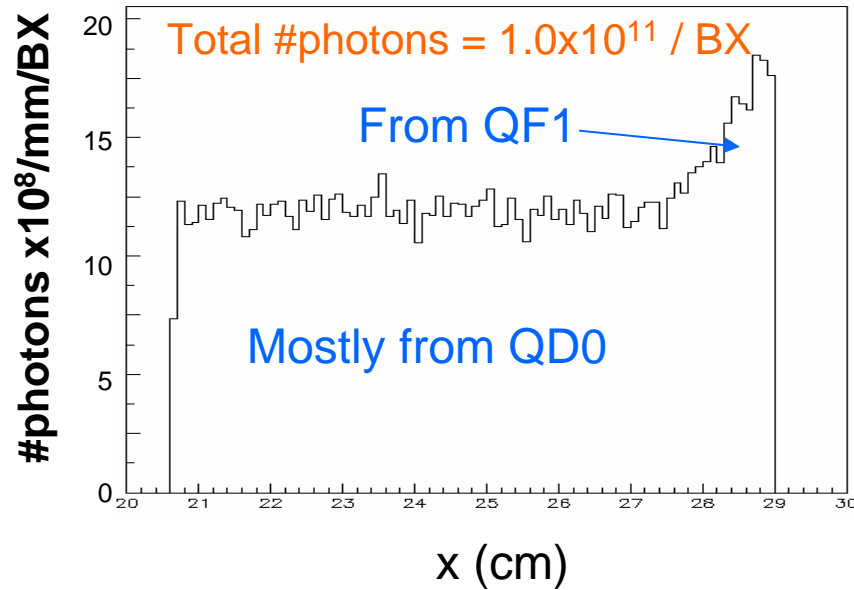
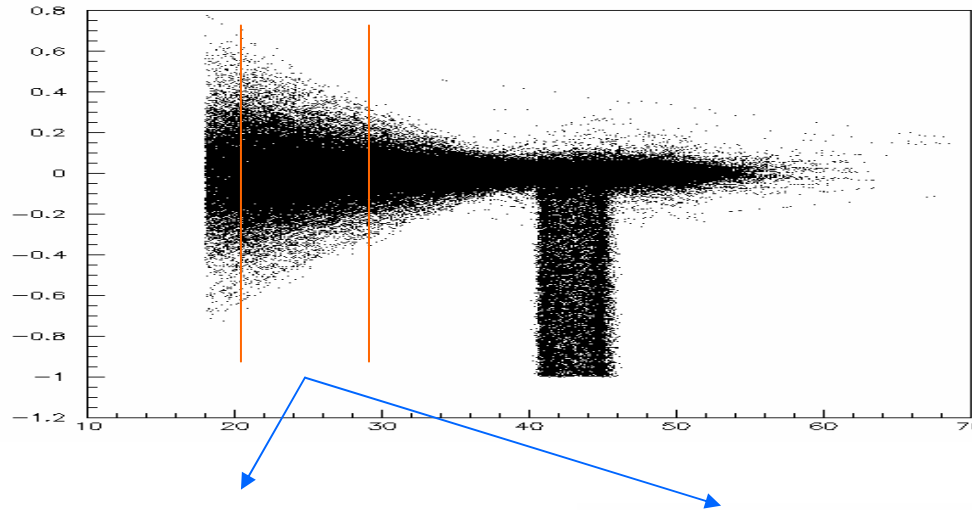
SR generations



These photons hit the septum.



250 GeV disrupted beam



SR rate at the septum

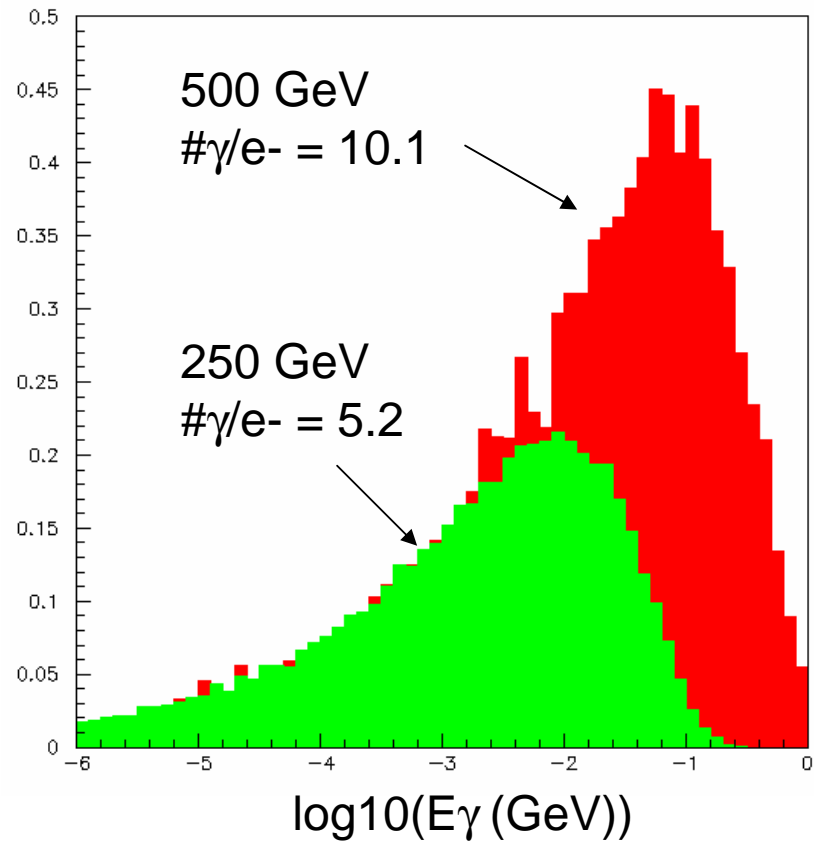
	Power (kW)	$\langle E_\gamma \rangle$ (MeV)
250 GeV	2.5	11
500 GeV	40.6	89
250 GeV	3.0	9.5
500 GeV	39.5	76
250 GeV	2.8	9.8
500 GeV	37.0	78

- TM disrupted beam
- AS disrupted beam
- AS undisrupted beam

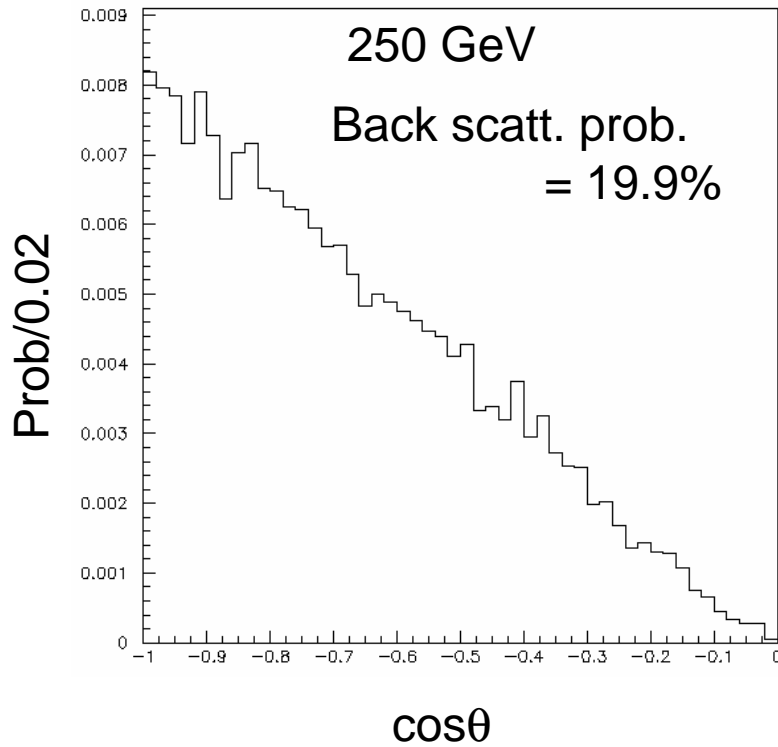
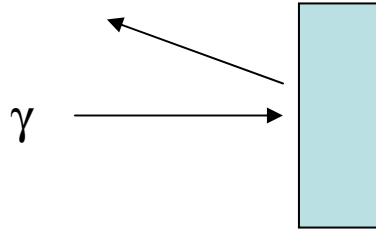
$$N_\gamma \sim B$$

$$E_c \sim E_b^2 \times B$$

SR Energy dist.



SR backscattering to IP



- To estimate the photon flux within 2 cm BeamCal aperture.
 - Find the backscattering rate in $-1 < \cos\theta < -0.9$
 - Use the solid angle of the 2 cm aperture from $z = 89\text{m}$.

	Rate	# γ s at IP/BX	# γ s in SiTracker from pairs
250 GeV	1.1×10^{-8}	2200	700
500 GeV	2.9×10^{-8}	11700	1900

Conclusions

- SR power at the septum magnet is 2.5 kW @ 250 GeV and 40.6 kW @ 500 GeV.
- Backscattered photon flux at IP is 2200/BX @ 250 GeV and 11700/BX @ 500 GeV.
- The IP photon flux is x3 (250 GeV) and x6 (500 GeV) of the secondary photons from pairs.