Number of particles

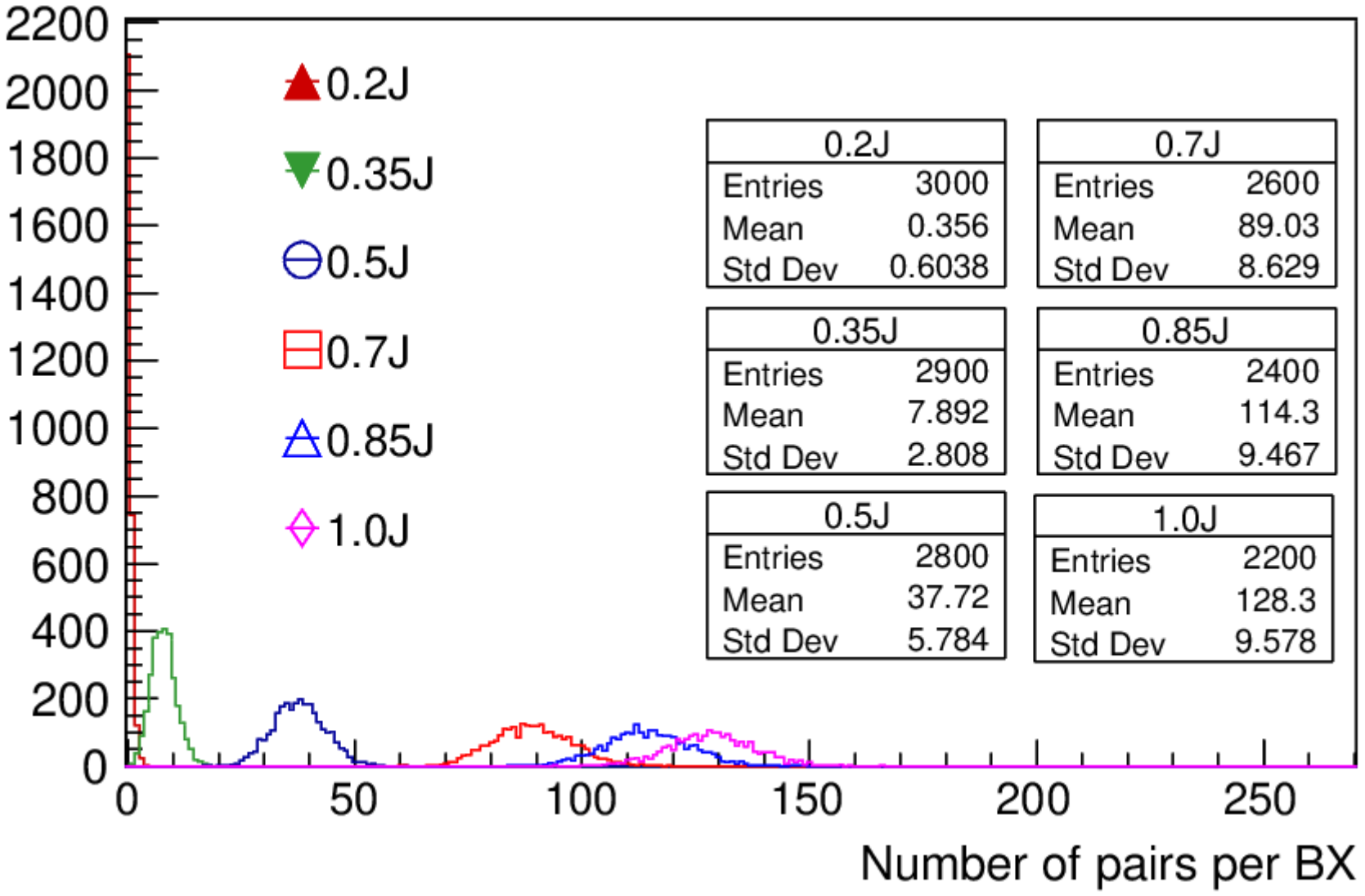
5 m from the target to IP

	e-	e+	Gamma	
Before target	6.25E+09			XFEL beam sigma_xy = 5μm, emittance: 1.4e-3
After target	6.26E+09	1.62E+06	5.60E+08	35 um tungsten (1%X0); +/-10 cm
Before IP	4.00E+09	1.20E+05	4.91E+06	
After IP				
Stage-0	1.32	1.32	4.80E+06	Laser: 1.0e19 W/cm2, (0.35J, 100um2, 35 fs)
Stage-0.5	24.5	24.5		Laser: 2.6e19 W/cm2, (1.0J, 100um2, 35 fs)

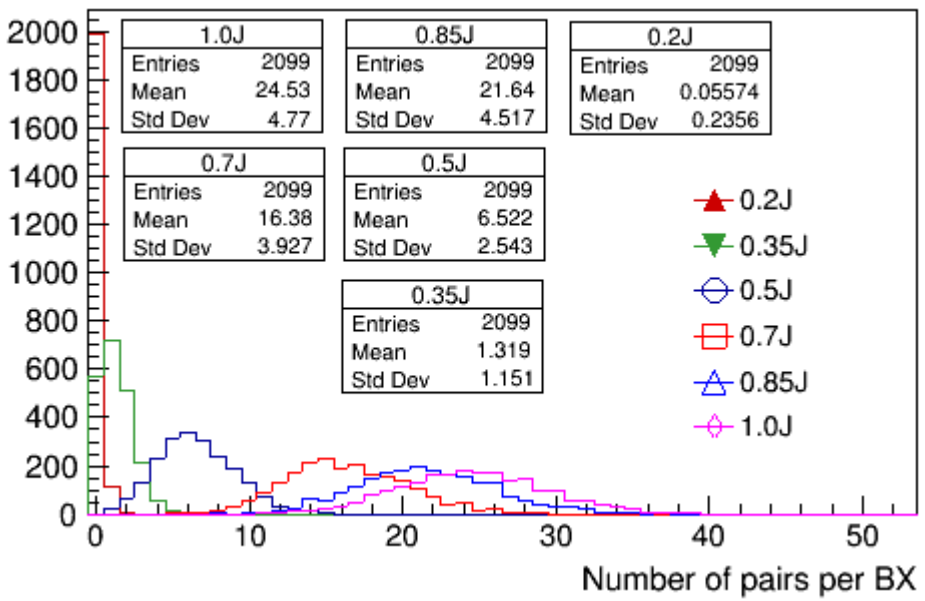
2 m from the target to IP

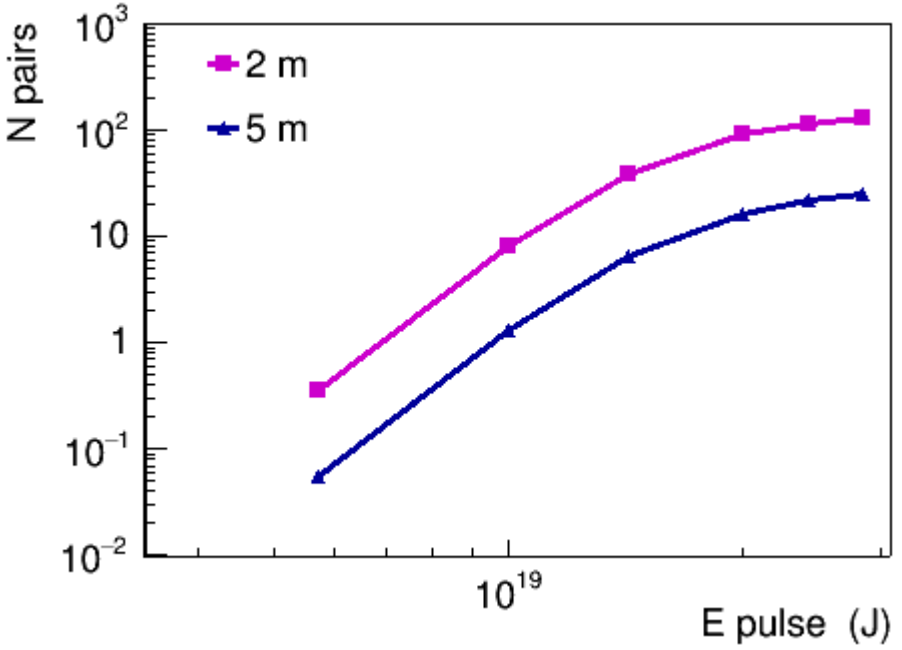
	e-	e+	Gamma	
Before target	6.25E+09			XFEL beam sigma_xy = 5μm, emittance: 1.4e-3
After target				35 um tungsten (1%X0)
Before IP			2.89E+07	
After IP				
Stage-0	7.89	7.89		Laser: 1.0e19 W/cm2, (0.35J, 100um2, 35 fs)
Stage-0.5	128.3	128.3		Laser: 2.6e19 W/cm2, (1.0J, 100um2, 35 fs)

Number of pairs for different laser intensity, target 2 m upstream of IP



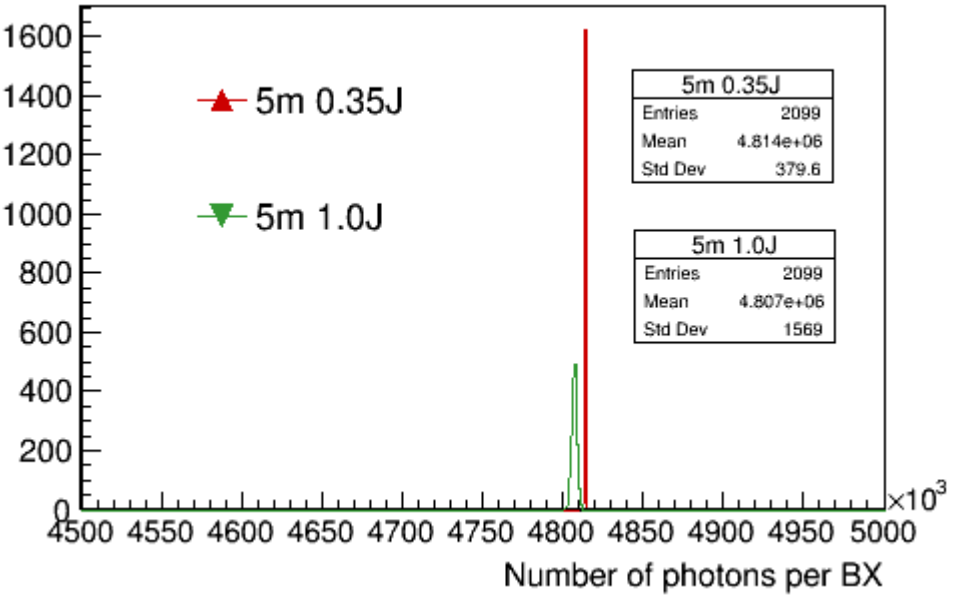
Tungsten target 5 m upstream of IP

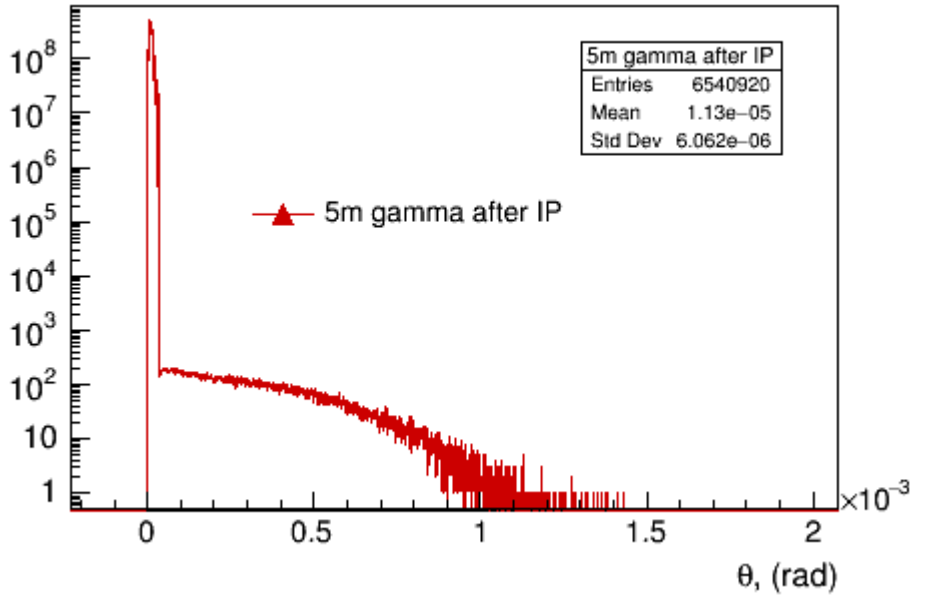




xi	I (W/cm2)	N pairs 2m	N pairs 5m	N2/N5
0.37	5.71E+018	0.356	0.0557408	6.39
0.49	1E+019	7.89241	1.31872	5.98
0.58	1.429E+019	37.7175	6.52168	5.78
0.69	2E+019	89.0315	16.3754	5.44
0.76	2.429E+019	114.31	21.6355	5.28
0.82	2.857E+019	128.306	24.5345	5.23

Gamma after IP





BPPP production rate

Extract Ec by fitting MC using equation (14)

$$\Gamma_{\mathrm{BPPP}} \rightarrow \frac{\alpha m_e^2}{E_e}\frac{9}{128}\sqrt{\frac{3}{2}}\chi_e^2 e^{-\frac{8}{3\chi_e}\left(1-\frac{1}{15\xi^2}\right)}\frac{X}{X_0}, \qquad (14)$$