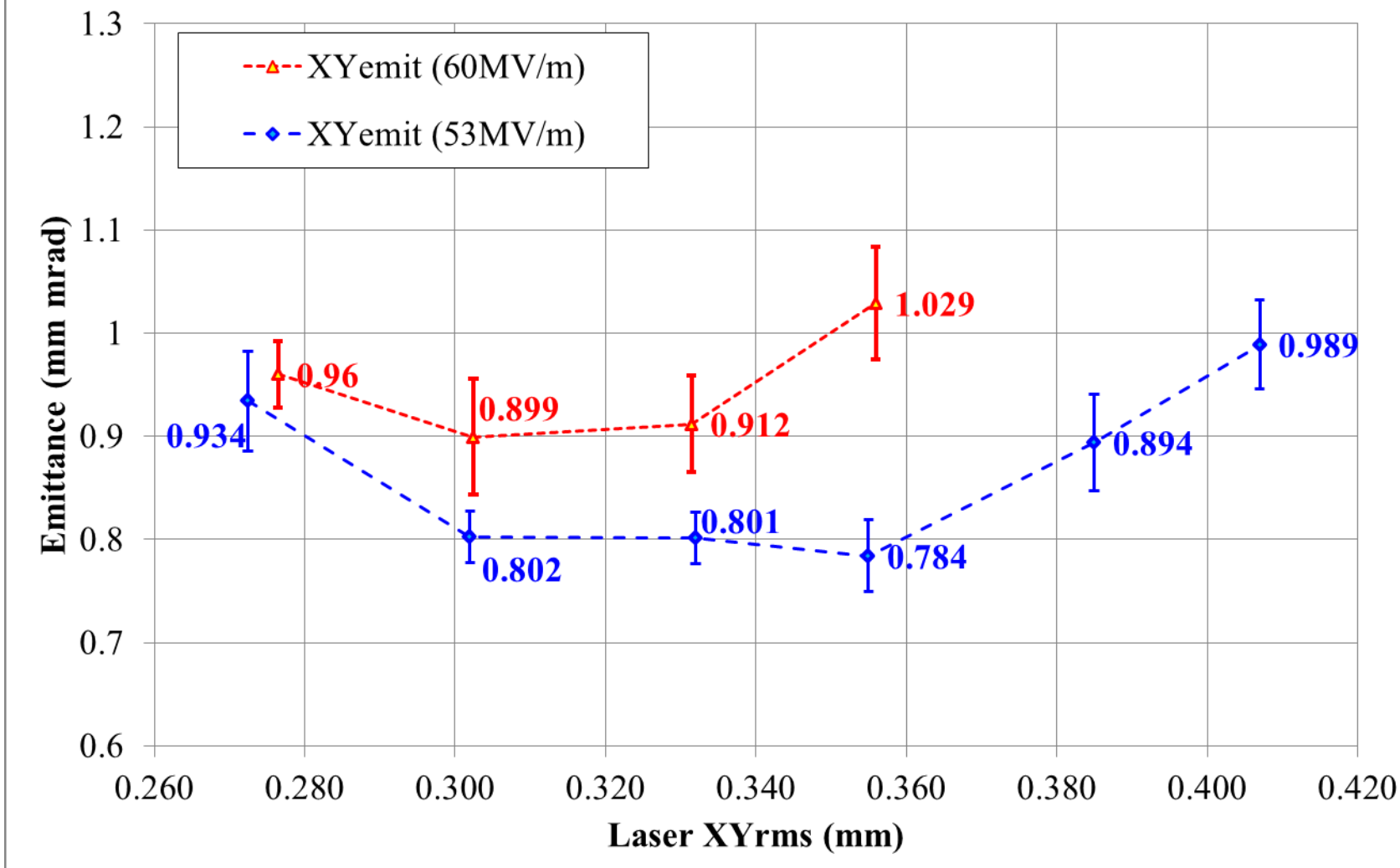


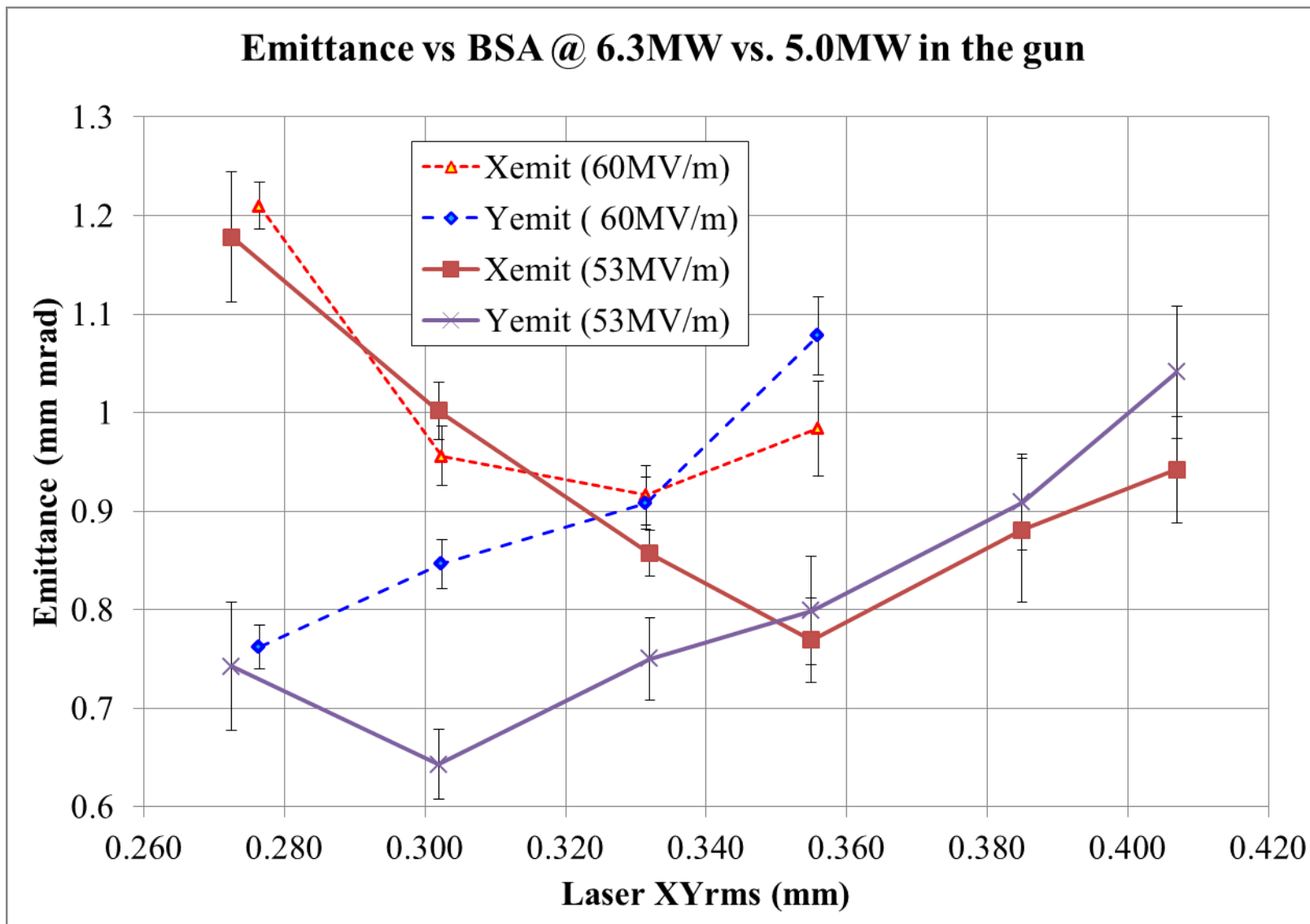
PITZ Run coordination meeting.

Update of the RC on 03.11.2015

M. Krasilnikov
05.11.2015

Emittance vs BSA @ 6.3MW vs. 5.0MW in the gun

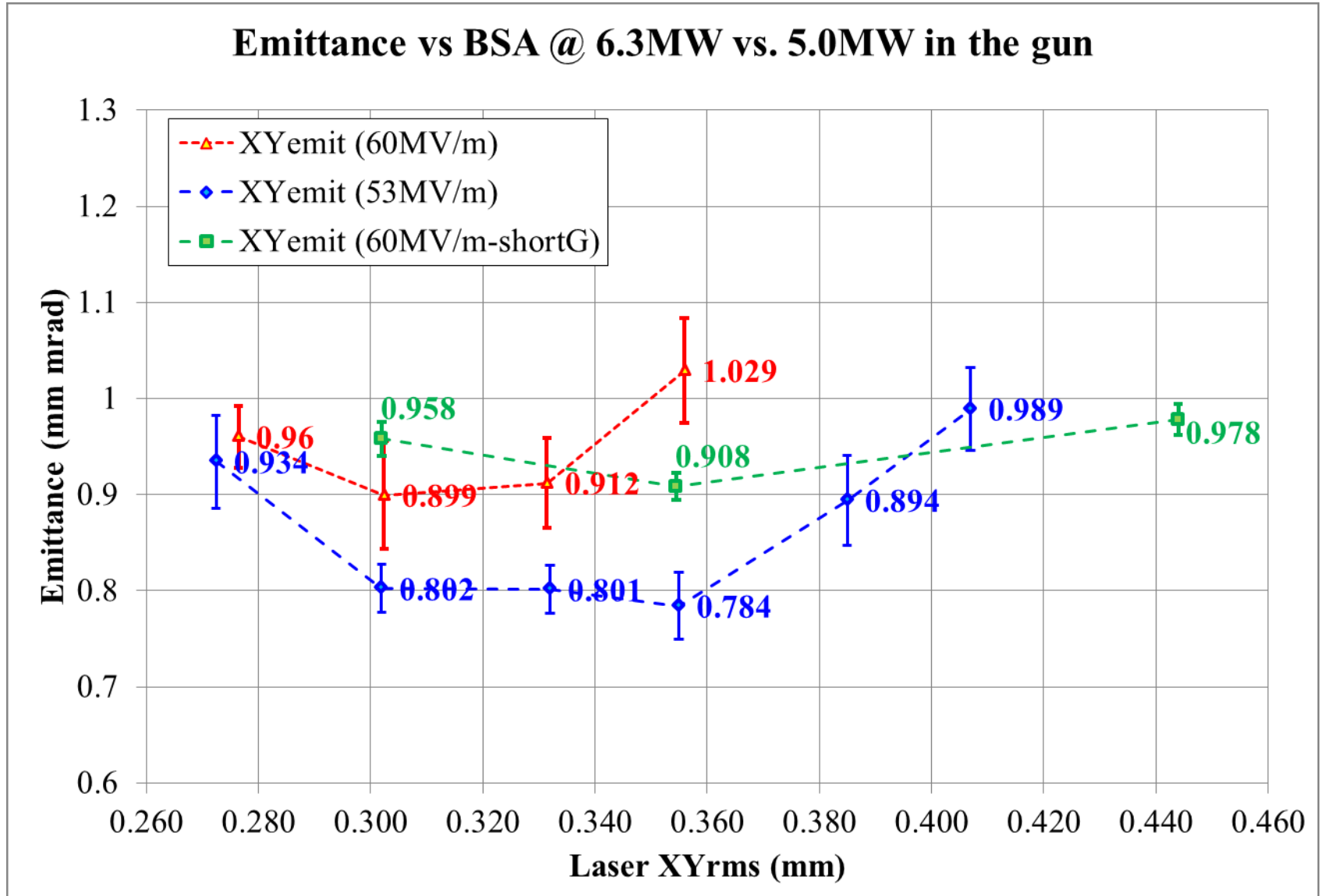




Emittance 500pC: longG vs. shortG

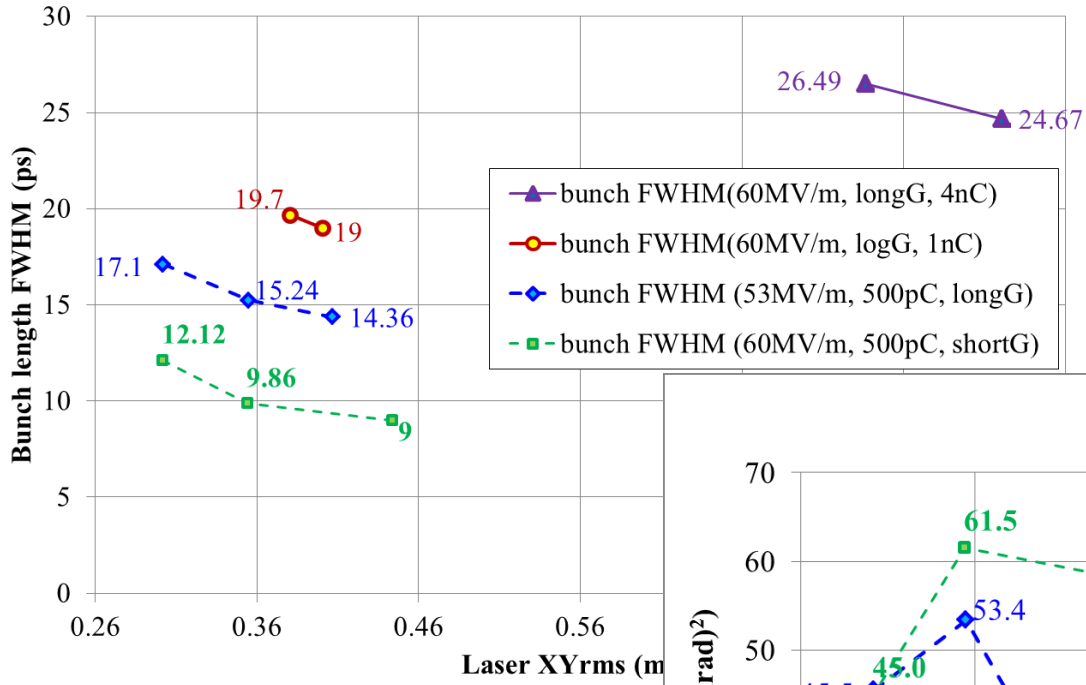
Long Gaussian (~11ps fwhm)

Short Gaussian (~2.5ps fwhm)

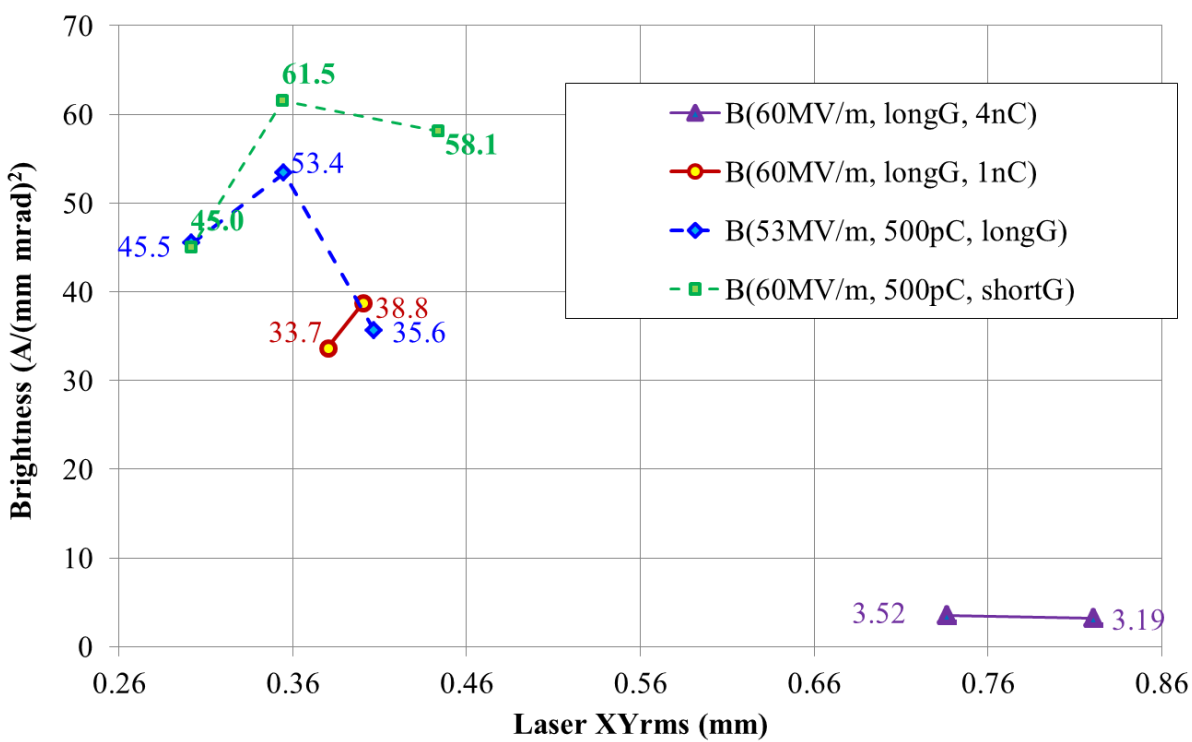


Bunch length and brightness: longG vs. shortG

Bunch length vs BSA



Brightness vs BSA

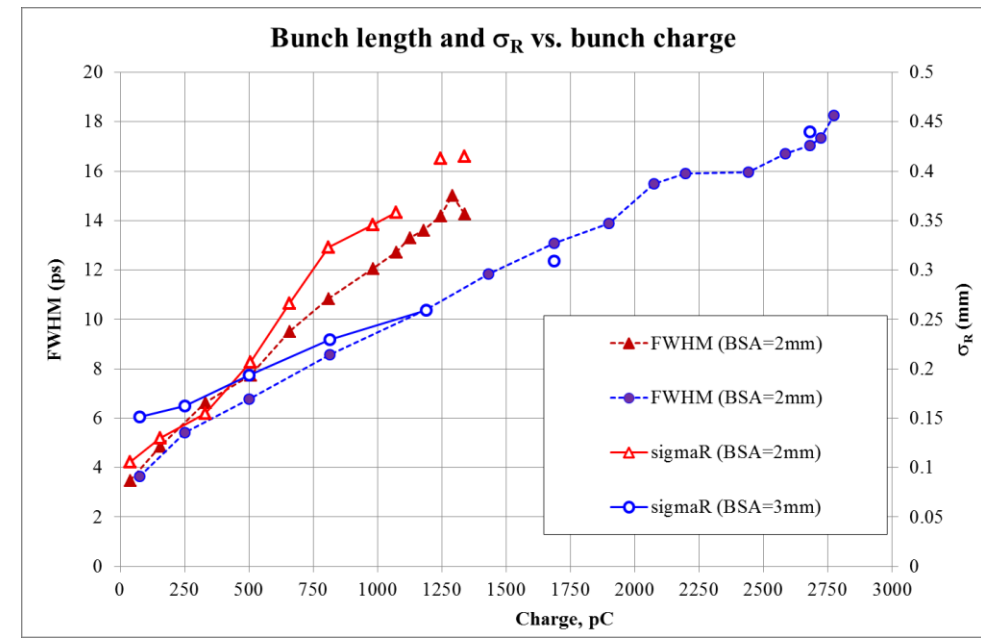
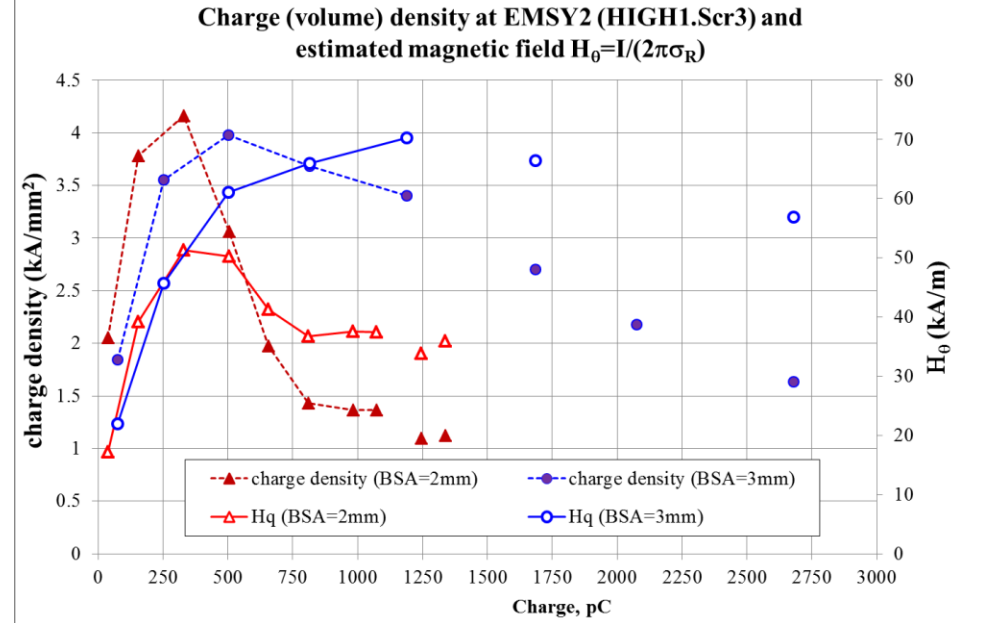


TDS – short

TDS – short: BSA=2; 3mm,
first $Q/\sigma_t \rightarrow \max(LT)$, then
 $\min(X_{rms}@EMSY2)$

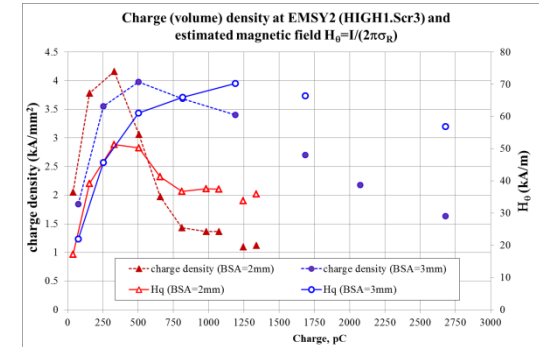
Highest charge density obtained (rms):
BSA=2.0mm $\rightarrow Q \sim 330\text{pC} \rightarrow \sim 4.16 \text{ kA/mm}^2$
BSA=3.0mm $\rightarrow Q \sim 500\text{pC} \rightarrow \sim 3.98 \text{ kA/mm}^2$

Highest estim MF H_0 :
BSA=2.0mm $\rightarrow Q \sim 330\text{pC} \rightarrow \sim 51 \text{ kA/m}$
BSA=3.0mm $\rightarrow Q \sim 500\text{pC} \rightarrow \sim 70 \text{ kA/m}$



TDS – short

BSA = 2 mm										
LT, %	Charge, pC	Error pC	Bunch length, FWHM, ps	Error ps	Current A	Xrms H1.Scr3	Yrms H1.Scr3	sigmaR mm	H _θ kA/m	Charge density kA/mm ²
1	39.5	26.5	3.47	0.23	11.4	0.073	0.076	0.105	17.201	2.053
3	155.5	29.5	4.86	0.21	32.0	0.091	0.093	0.130	39.142	3.781
6	330.8	29.1	6.63	0.25	49.9	0.109	0.11	0.155	51.285	4.162
10	505.3	29.5	7.75	0.32	65.2	0.15	0.142	0.207	50.239	3.061
15	656.4	31.6	9.52	0.40	69.0	0.171	0.204	0.266	41.227	1.977
20	809.8	29.8	10.85	0.55	74.6	0.229	0.228	0.323	36.760	1.430
25	982.3	29.2	12.05	0.70	81.5	0.247	0.242	0.346	37.519	1.364
30	1072.6	29.5	12.72	0.81	84.3	0.216	0.286	0.358	37.445	1.365
35	1125.7	30.9	13.30	0.85	84.6					
40	1179.7	33.3	13.60	0.84	86.7					
50	1245.5	28.0	14.19	0.85	87.8	0.238	0.337	0.413	33.858	1.094
60	1289.6	28.6	15.02	0.47	85.9					
70	1337.6	31.0	14.28	0.44	93.7	0.255	0.327	0.415	35.951	1.123



BSA = 3 mm										
LT, %	Charge pC	Error pC	Bunch length FWHM, ps	Error ps	Current A	Xrms H1.Scr3	Yrms H1.Scr3	sigmaR mm	H _θ kA/m	Charge density
1	75.9	28.5	3.65	0.15	20.8	0.098	0.115	0.151	21.907	1.845
3	252.1	28.3	5.42	0.23	46.5	0.119	0.11	0.162	45.689	3.554
6	501.3	25.8	6.77	0.29	74.1	0.141	0.132	0.193	61.019	3.979
10	815.6	31.0	8.57	0.4	95.2	0.177	0.146	0.229	66.017	3.683
15	1189.8	30.2	10.39	0.53	114.5	0.182	0.185	0.260	70.228	3.401
20	1430.2	37.1	11.83	0.56	120.9					
25	1685.2	32.3	13.07	0.72	128.9	0.214	0.223	0.309	66.395	2.702
30	1899.5	33.8	13.87	0.83	136.9					
35	2075.0	34.7	15.5	0.56	133.9	0.238	0.258			2.180
40	2195.8	37.0	15.9	0.62	138.1					
50	2440.2	35.2	15.96	1.02	152.9					
60	2584.5	31.8	16.72	0.67	154.6					
70	2678.7	36.6	17.04	0.6	157.2	0.293	0.328	0.440	56.886	1.636
80	2721.2	35.8	17.35	0.64	156.8					
90	2772.6	43.5	18.25	0.59	151.9					

