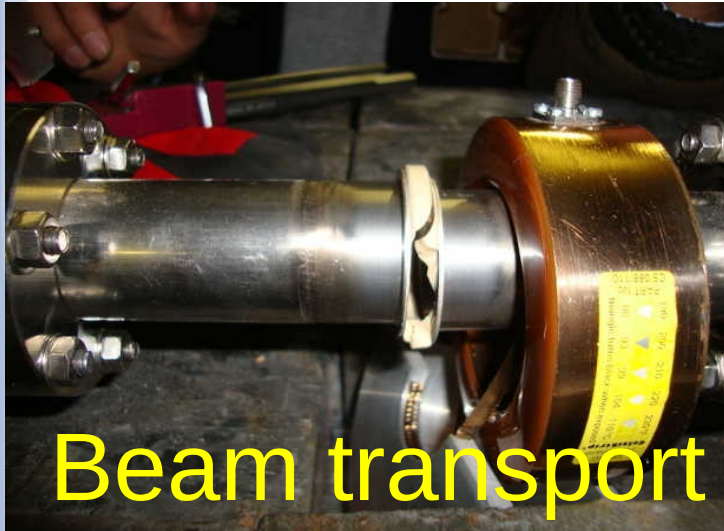


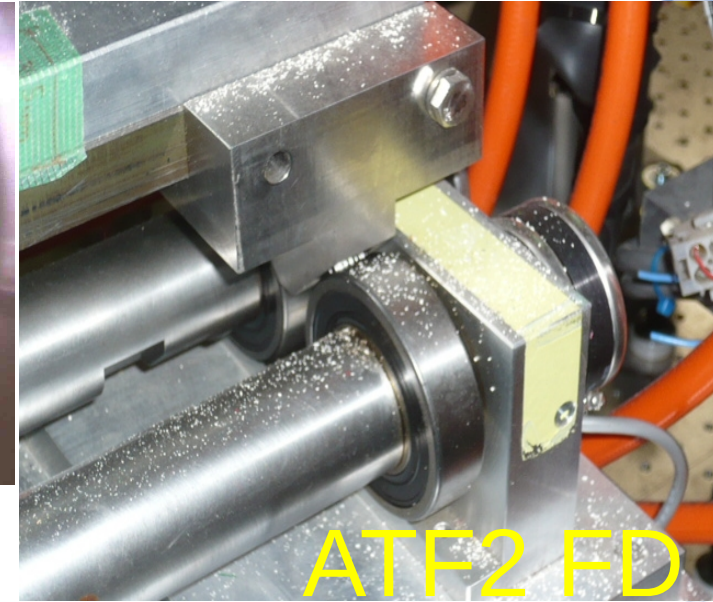
ATF2 – Impressive recovery from earthquake



Beam transport

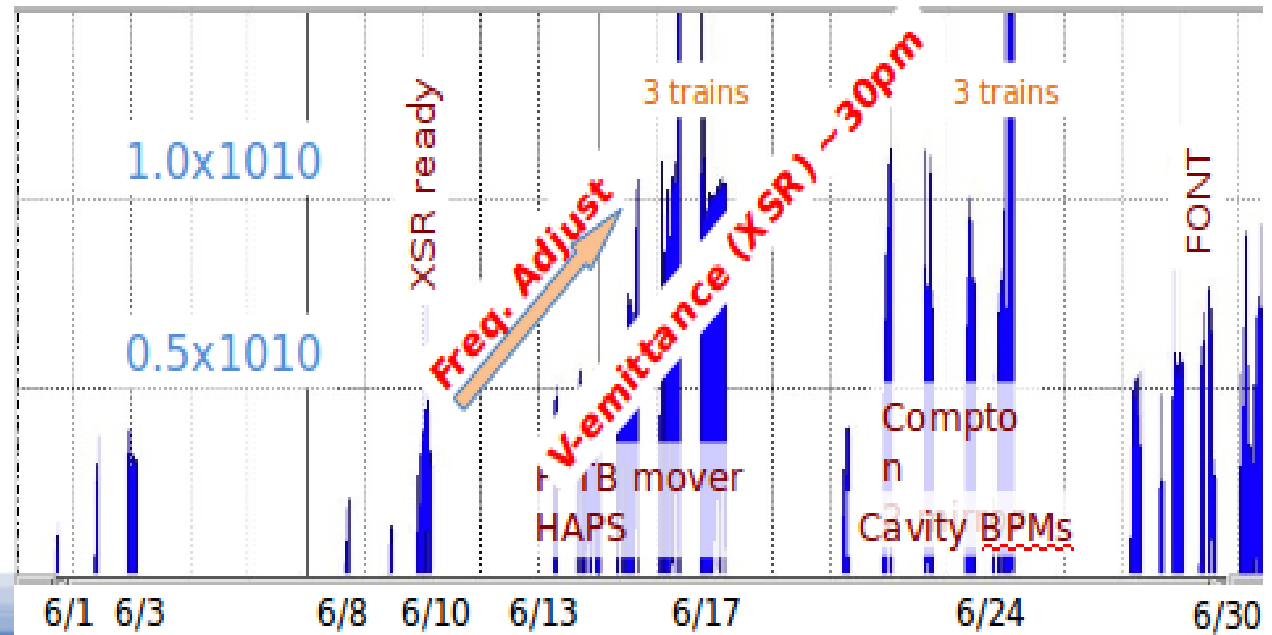


Damping ring

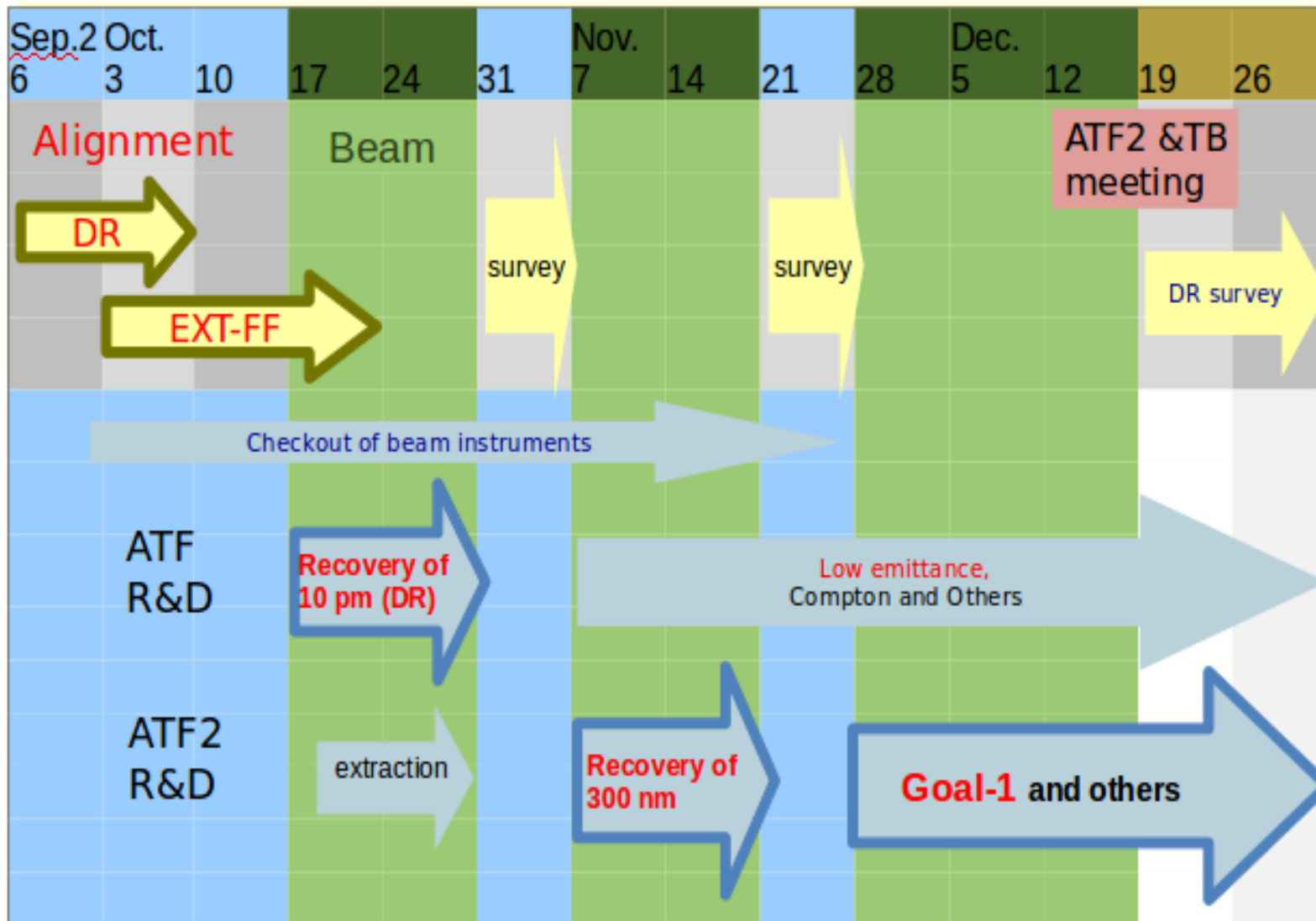


ATF2 FD

**Beam back
already in
June!**



ATF2 schedule



ATF2 schedule



Planning for Goal1 (Autumn)

P. Bambade

October (2 weeks)

- alignment day-time → beam evenings & nights
- DR tuning (emittance ~ 10 pm, reproducible extraction orbit), extraction

November week-1

- if needed, further DR tuning (emittance reduction, reproducible & stable extraction)
- initial R-matrix, BBA, steering, linear optics, BSM laser wire test

November week-2

- Trial run with "goal 1" 6-shift block;
→ recover 300 nm spot in BSM interference mode

December week-1

- further R-matrix, BBA, steering, linear optics
- IP beam stability test with IP-BPM, slow feedback
- decision on whether to increase β^* by factor 5

December week-2

December week-3

- focus on "goal-1" 6-shift blocks in weeks 2 and 3;
→ validate 30° BSM fringe mode with $\sigma_y < 300$ nm;
- initial test of 174° BSM mode if possible

Planning for Goal1 (Autumn)

P. Bambade

October (2 weeks)

- alignment day-time → beam evenings & nights
- DR tuning (emittance ~ 10 pm, reproducible extraction orbit), extraction

November week-1

- if needed, further DR tuning (emittance reduction, reproducible & stable extraction)
- initial R-matrix, BBA steering, linear optics, BSM laser wire test

November week-2

- final run of "goal 1" 6-shift block;
→ recover 300 nm spot in BSM interference mode

December week-1

- further R-matrix, BBA, steering, linear optics
- IP beam stability test with IP-BPM, slow feedback
- decision on whether to increase β^* by factor 5

December week-2

- focus on "goal-1" 6-shift blocks in weeks 2 and 3;

December week-3

- validate 30° BSM fringe mode with $\sigma_y < 300$ nm;
- initial test of 174° BSM mode if possible

Discussion: not aggressive enough !!

Shintake monitor

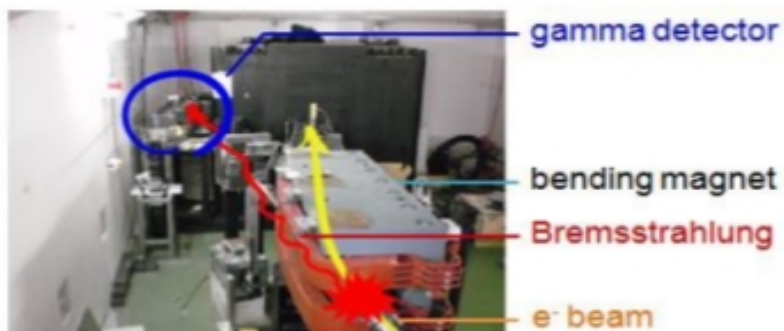
J. Yan

High BG



Investigate new BG source
→ intermediate collimator

Extra post-IP BG source



Beam size jitter



New status display

Monitor beam profile, magnet current

Beam position jitter

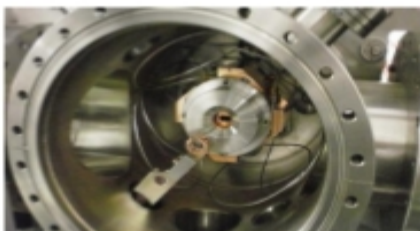


IPBPM + upstream BPMs

Requirement for 30 mode, $\sigma \sim 100$ nm:
IPBPM res. < 30 nm
Beam position jitter < 50 nm

Needs work!!

S. Boogert

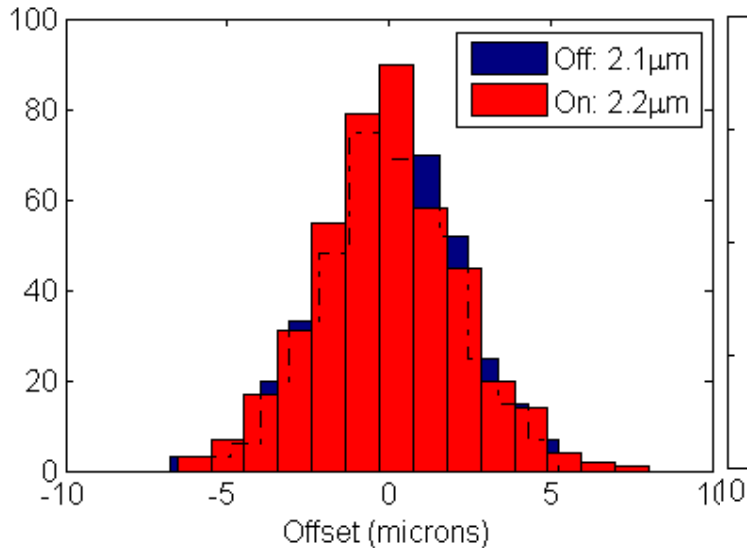


New analysis method:
"atfepics_full"
Include data of all ATF2 BPMs

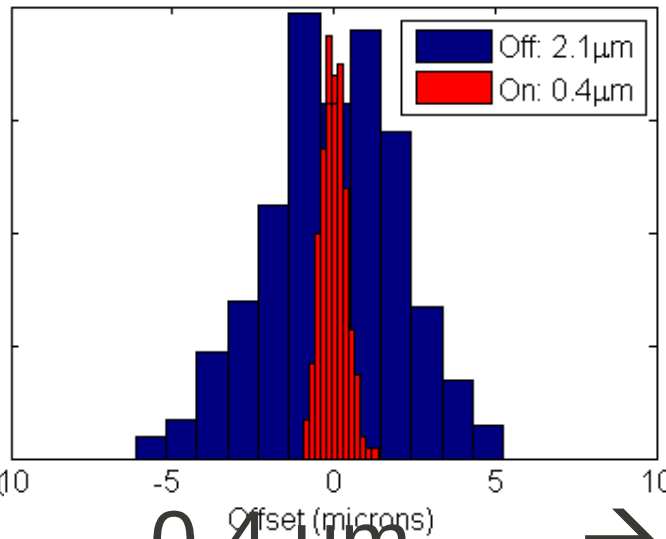
FONT results & future

P. Burrows

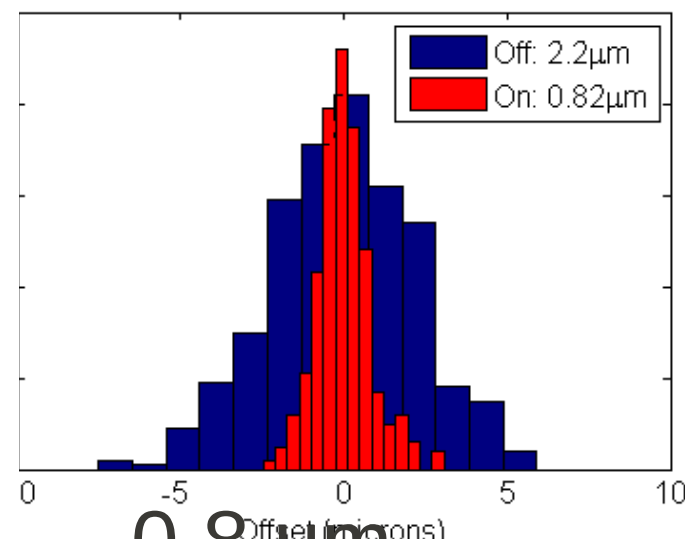
Bunch 1



Bunch 2



Bunch 3



0.4 μm



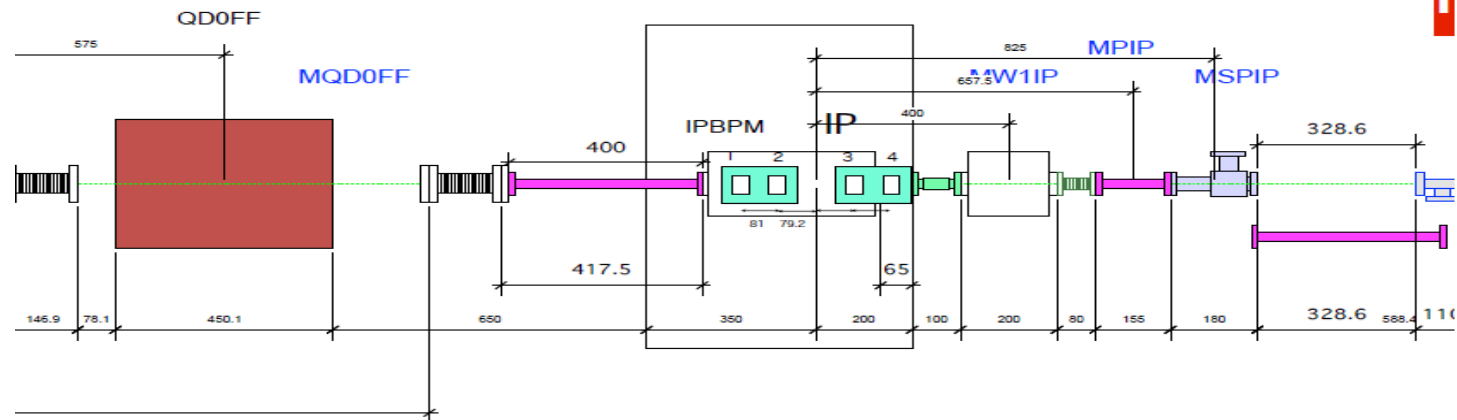
0.8 μm

CCG

IP

IP

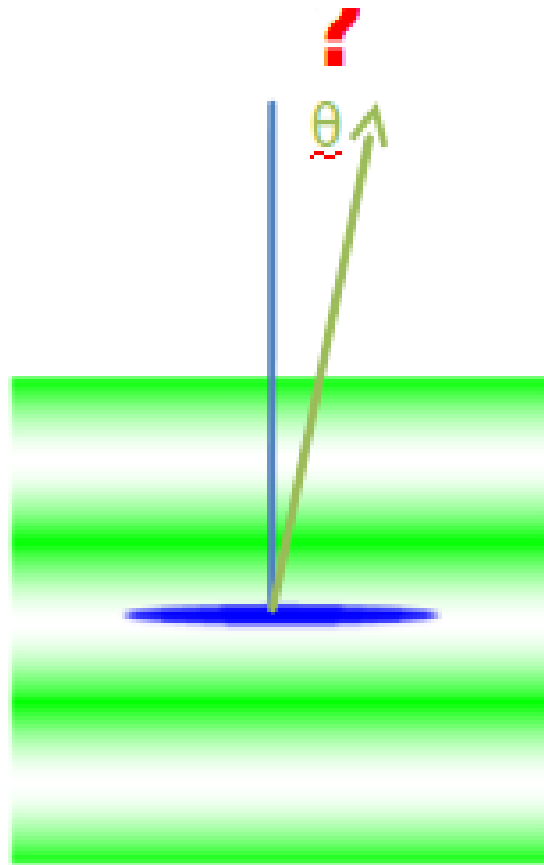
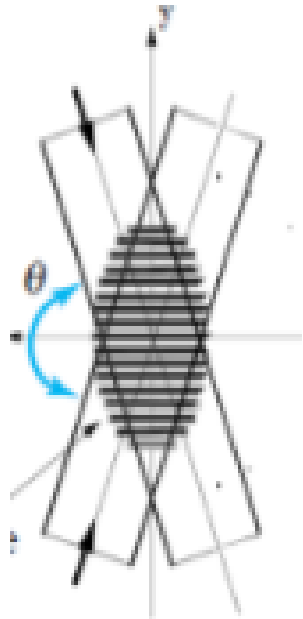
IP feedback



12/16/10

Critical: Rotation of IP BSM

G. White



**Can we
know/control
this at the
100urad level?**

New lattice

G. White

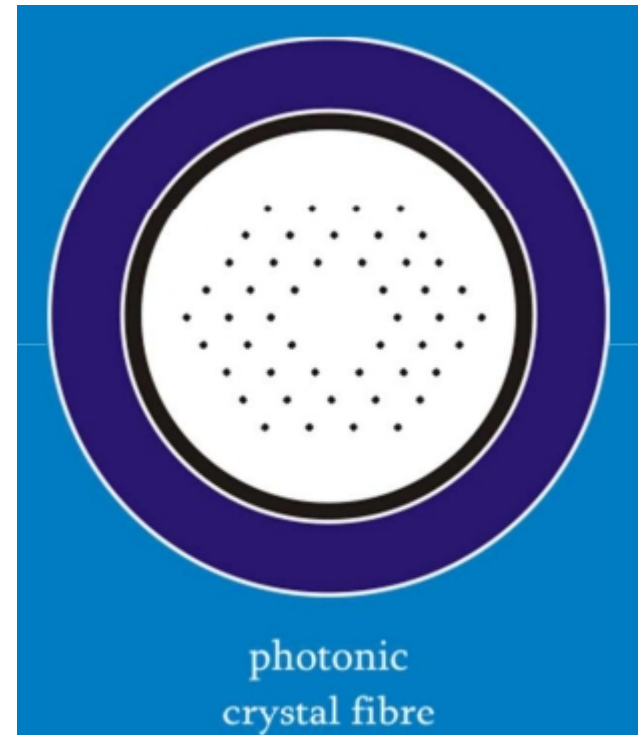
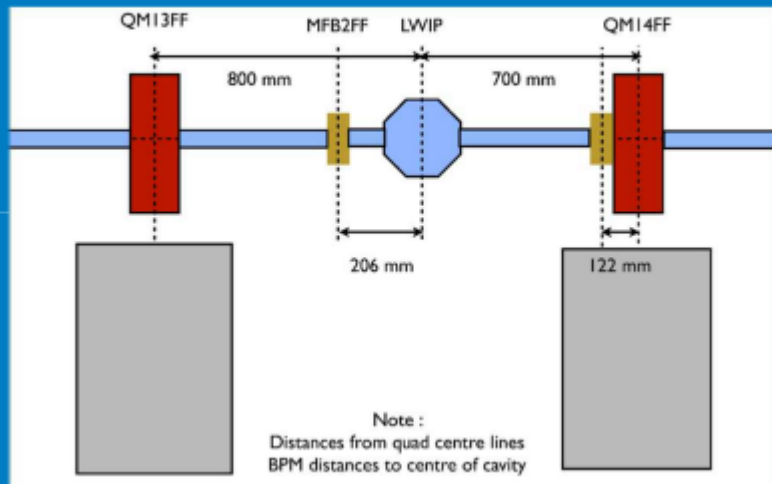
	BX1BY1	BX2.5BY1	BX10BY1
MFB2FF waist σ_x/σ_y (um)	275/0.67	249/0.57	150/1.16
IP σ_x/σ_y (um/nm)	4.2/ 35.8	4.5/36.3	8.9/36.0
IP 3rd order subtracted σ_y (nm)	34.3	34.0	34.2
IP effective β_y / mm	0.098	0.096	0.097
Dominant residual aberrations and contributions / nm	T344(0.8), U3246 (0.2)	T344 (2.1), U3244 (0.1)	T344(1.2), U3246(0.1)

Discussion: Consensus to use BX2.5BY1

Laser wire & fiber lasers

L. Corner

Advantages of new laserwire location



$\lambda = 1\mu\text{m}$, double to 500nm for smaller spot size.
Need linear polarisation after amplification, get polarisation maintaining fibre.

New FD quads from CERN?

Tolerances for QD0FF and QF1FF at a $r_a = 0.02\text{m}$

H. Garcia
E. Marin

Multipole	Sextupolar [10^{-4}]		Octupolar [10^{-4}]	
	Normal	Skew	Normal	Skew
QF1/QD0	0.83	0.109	2.61	0.304

Multipole	Decapolar [10^{-4}]		Dodecapolar [10^{-4}]	
	Normal	Skew	Normal	Skew
QF1/QD0	3.04	0.542	8.11	1.28

Reaching 25-30nm in ATF2 requires:

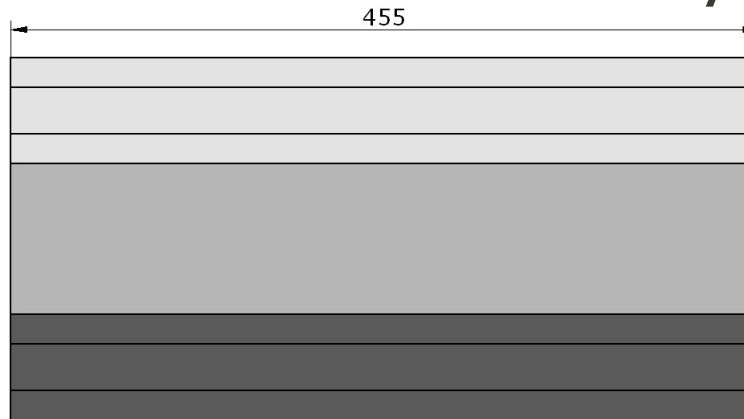
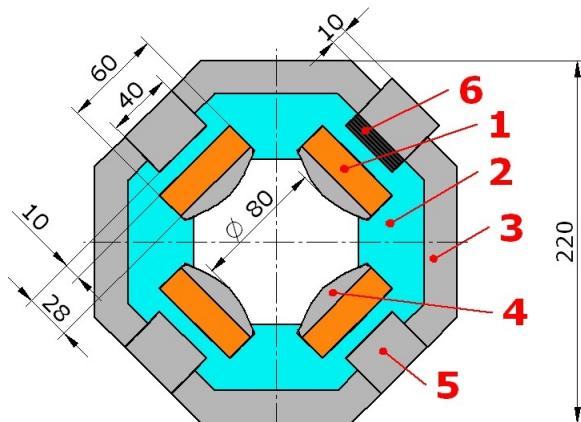
-new FD quads,

-swapping quads S. Bai & E. Marin

-increase β^*_x

New QF1 & QD0 design

A. Vorozhtsov



Hybrid
Large aperture

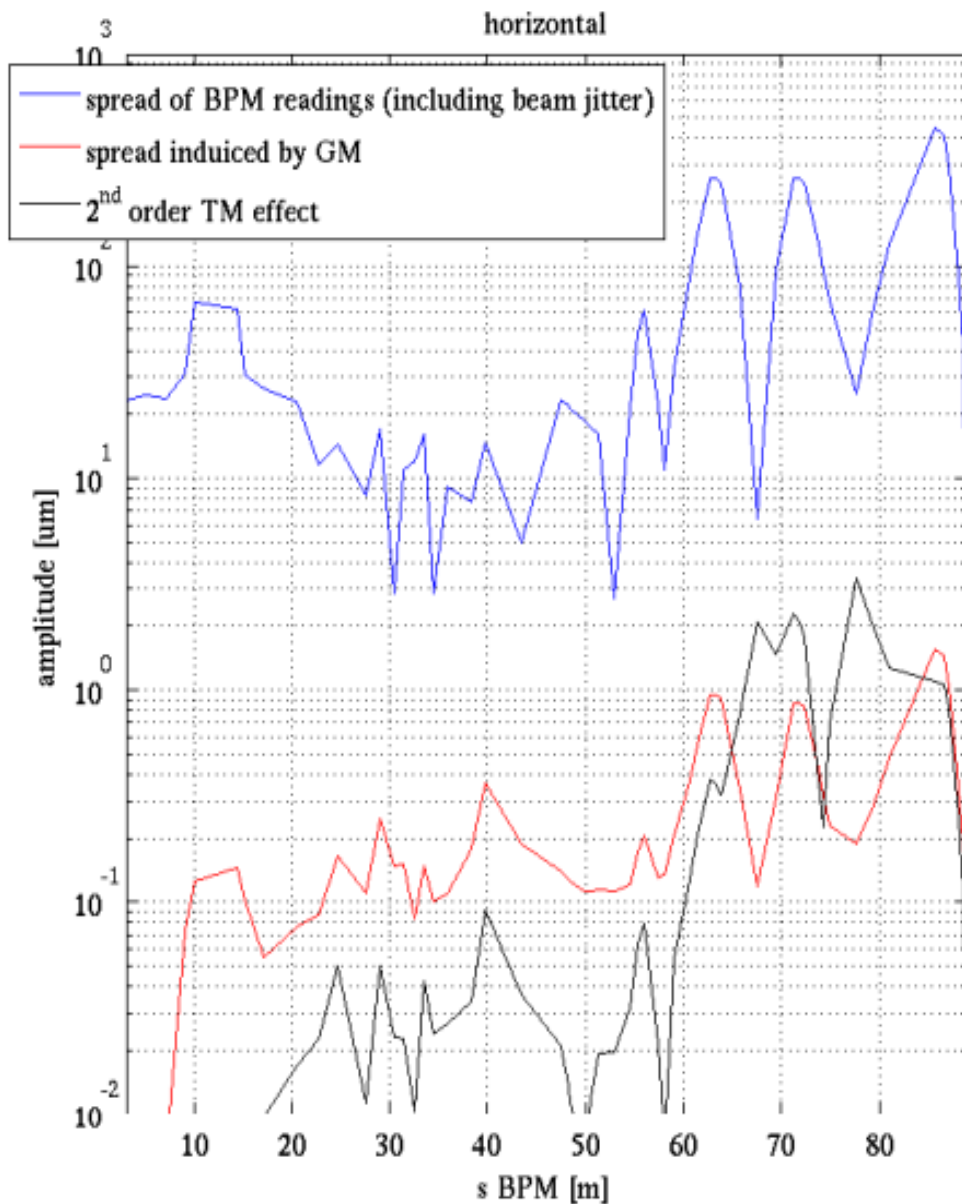
- 1- P.M. Block, Sm2Co17
- 2- Aluminium core
- 3- Return Yoke, AISI 1010
- 4- Pole Tip, AISI 1010
- 5- Tuning block, AISI 1010
- 6- Spacers, Stainless steel

Magnet Name	QF1F		Linac 4(Proto)			
Gradient	6.791 T/m		~16 T/m			
Aperture radius	40 mm		22.5mm			
GFR radius	20mm (50%)		15 mm (67%)			
Harmonic N	Required		MSRD@15 mm		Scaled@11.25 mm(50%)	
	an	bn	an	bn	an	bn
3	0.124	0.748	8.5	-5.2	6.38	-3.90
4	0.344	4.12	0.5	6.1	0.28	3.43
5	0.665	2.76	-1.3	-0.3	-0.55	-0.13
6	1.57	9.82	0.8	-2.2	0.25	-0.70

**Good
Field
quality!**

Possibility to detect ground motion at ATF2

Yves Renier



**New algorithm
incorporating
Sextupole effects**