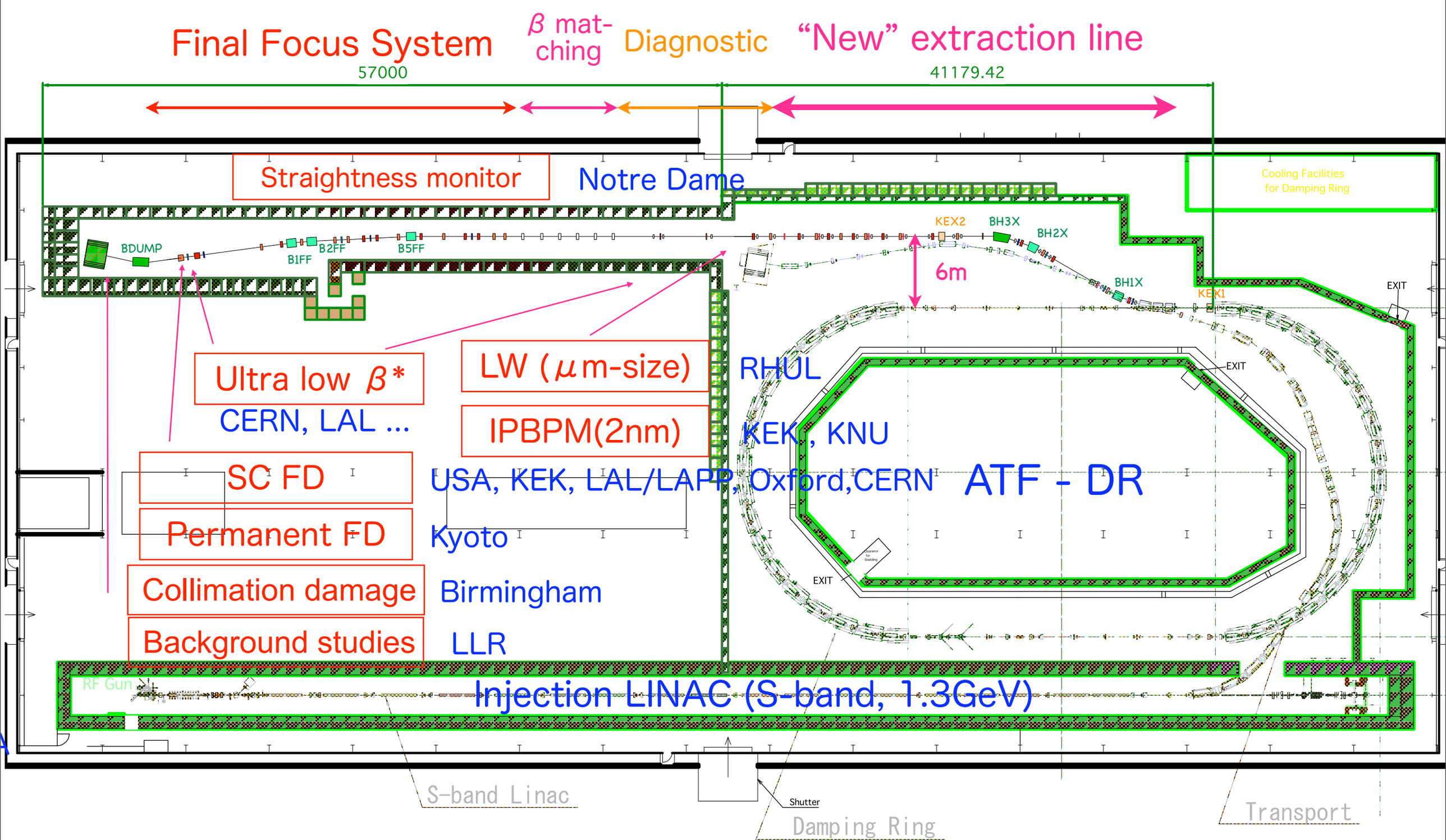
Goals at this meeting

1. Review commissioning status
   - BPMs, Carbon WS, BSM etc. and software
   - High Beta Optics beam tuning
2. Plan the strategy and milestones
   - in details for the 1st and 2nd goals
     up to 2010 and 2012, respectively,
     , identifying key issues
3. Future plan after TDP2, i.e. 2013
   - SC Q proposal Update

T. Tauchi, A.Seryi, P.Bambade, 9th ATF2 Project Meeting, 14-17 December 2009

ATF2 beam line and planned/proposed R&Ds

2008 - 2010 - 2012 - 2014 -



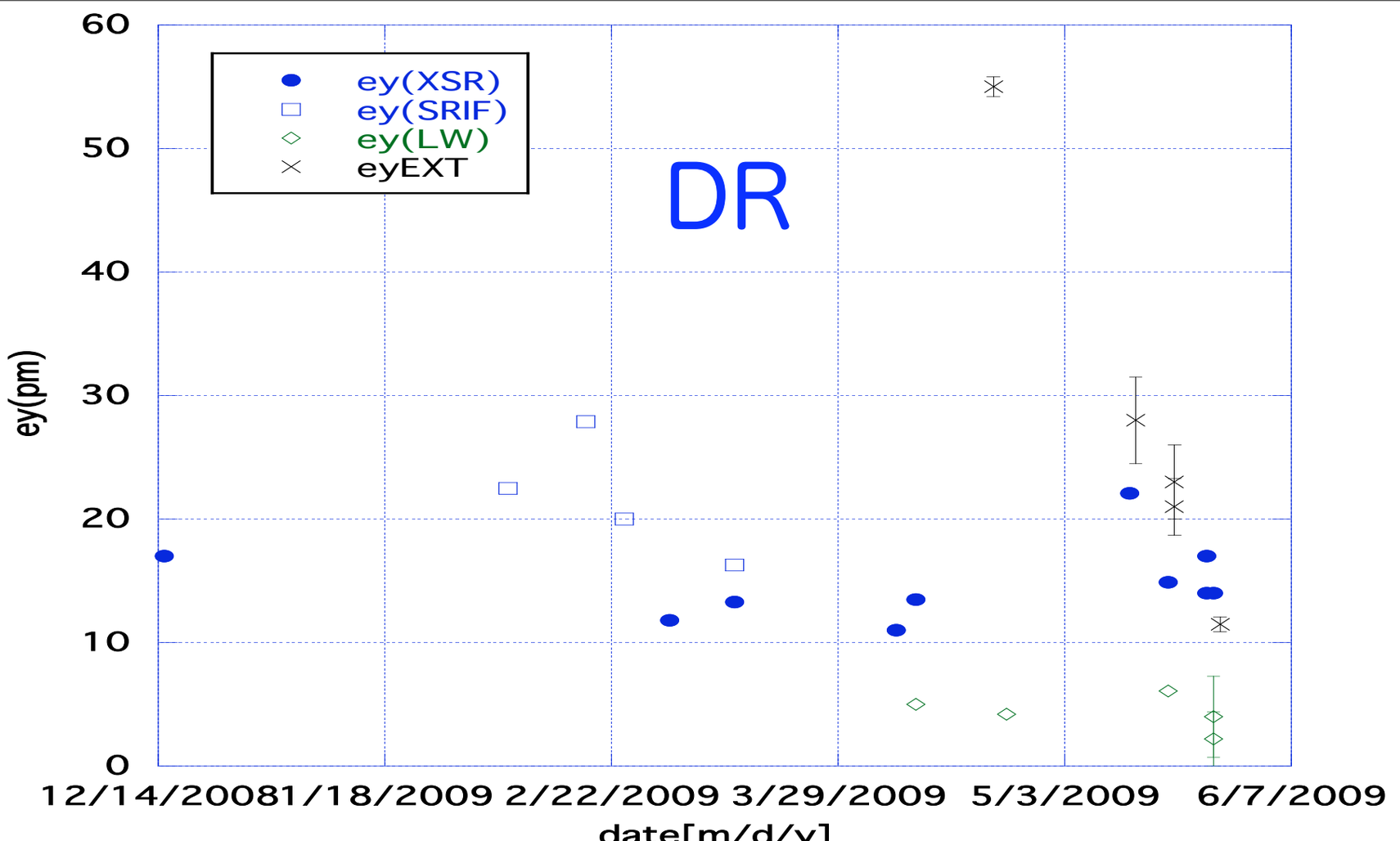
2009年 12月 15日 火曜日

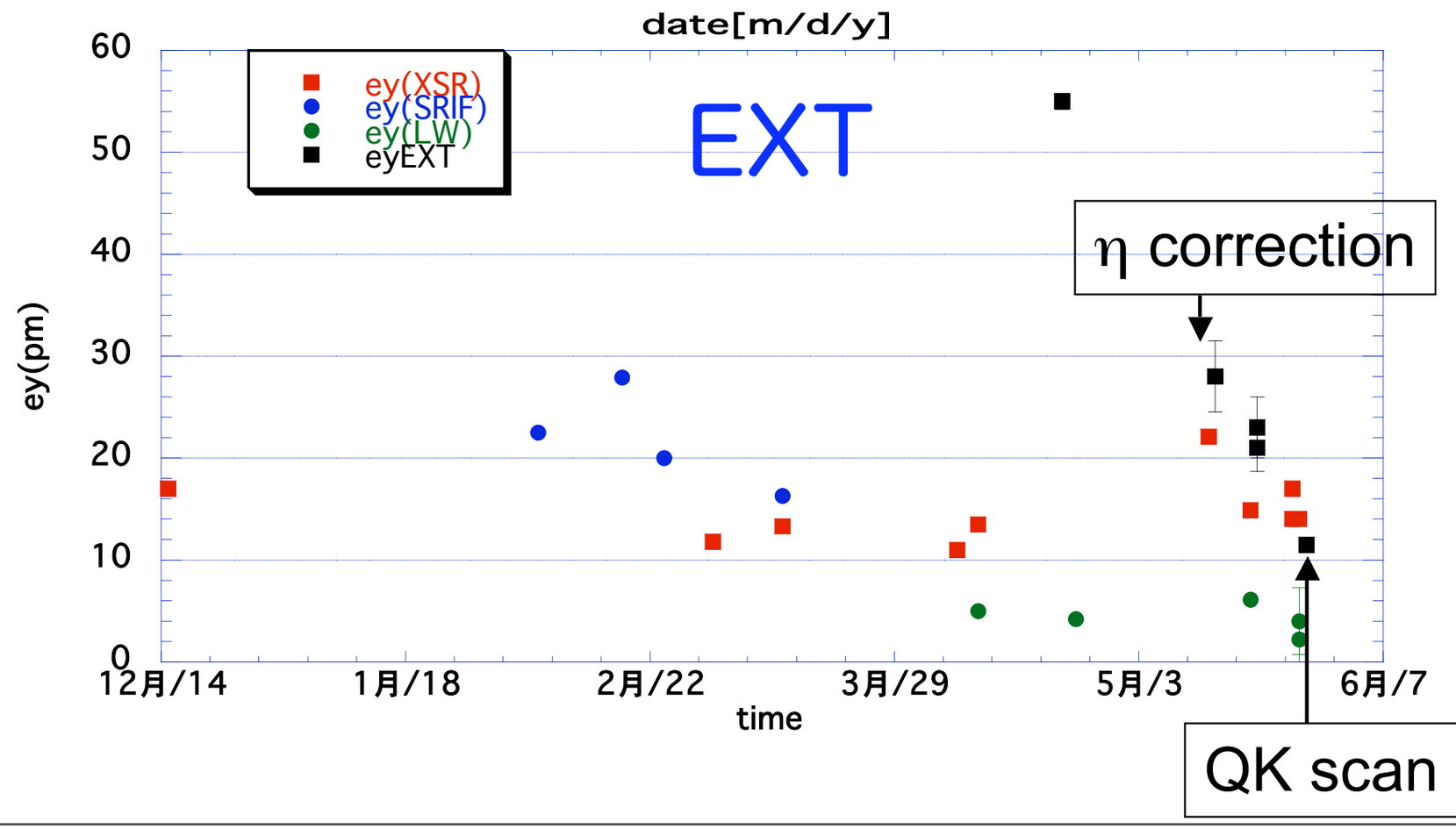
Parameters at ATF2

to be updates

IP Parameter	nominal	May 2009	Dec. 2009
Beam energy	1.3GeV	1.3GeV	1.3GeV
Emittance in x	2 nm	1.7nm	1.7nm
Emittance in y	12 pm	11pm	<10pm
Beta function in x	4 mm	8cm	8cm
Beta function in y	0.1mm	1cm	1cm
beam size in x	2.8 μm	~10 μm	~10 μm
beam size in y	35 nm	not yet	1.5 μm

Vertical Emittance





Horizontal beam size by the LW mode of the IPBSM

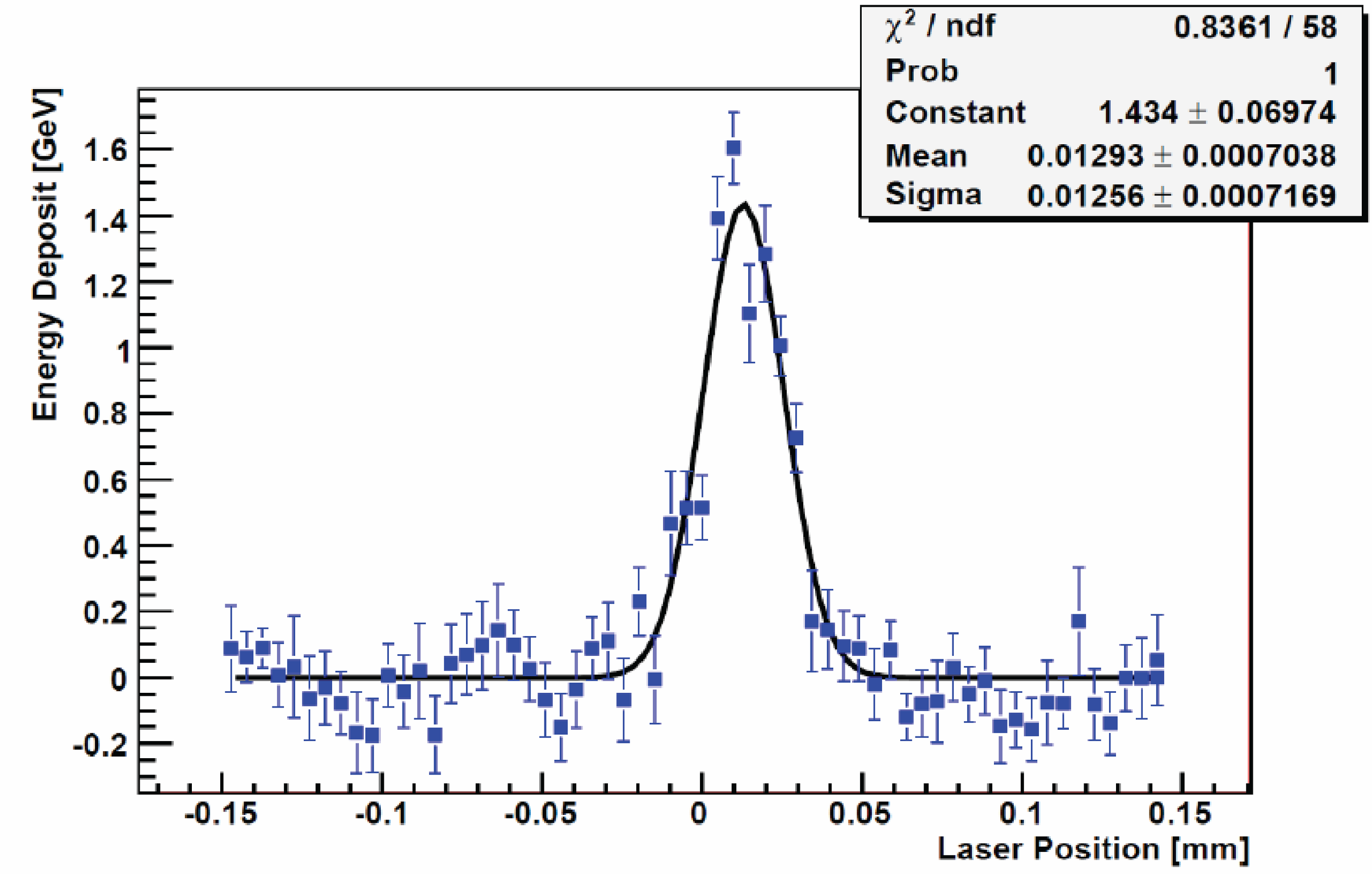


Figure 5: Convoluted horizontal size measured by BSM in laser wire mode in March 2009.

Key issues

1. Beam stability at LINAC and DR

- improvement of cooling water system

i.e. precise temperature control

done

- upgrade of DR-BPM electronics

all in next spring, i.e. 2010

2. Reliable diagnostic tools

- calibrated and reproducible/stable devices

i.e. BPMs, wire scanners, screen monitors, done

OTRs and IP-BSM (Shintake monitor)

3. Softwares : ATF operation and flight simulator

- integration of sub-system controls/monitors done

Hardware, recently commissioned

1. Carbon wire scanner with 5μm at the post IP

note : 45 degree scanner with 10μm tungsten wires have been fully commissioned

- vertical scanner with three 5μm carbon wires

one horizontal and two +/- 1.3 degree wires

2. OTR at the beginning of extraction line
3. Stripline BPMs with short and large aperture

note : long and small aperture ones have been well calibrated.

4. S-band BPMs

- some issue (software?) remains

5. Shintake monitor

note : laser wire mode has been fully commissioned

- Interference mode, 2^o, 8^o, 30^o and 174^o
- IPBPM will be installed in next year

“ATF2” site works in this summer

1. Monalisa done
   - Vibration measurement at IP
2. Straightness monitor done
   - installation
3. Laserwire (LW) done
   - installation/commissioning the laser system
4. Shintake monitor done
   - new screen, wire scanner and new laser
   - RHUL/Oxford-LW laser transport line not yet
5. Alignment at ATF2 beam line done
6. HLS system done
   - a collaborator from SLAC

ATF beam operation schedule

10 2009

Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Fast Kicker Studies

2 x 60cm stripline kickers

11 2009

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

BPMs, IPBSM, FONT

ATF2 beam tuning

13th Nov. First signals from the interference

All the BPMs are calibrated.

12 2009

Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

BPMs, IPBSM, FONT, Tilt

Carbon wire scanner@PIP

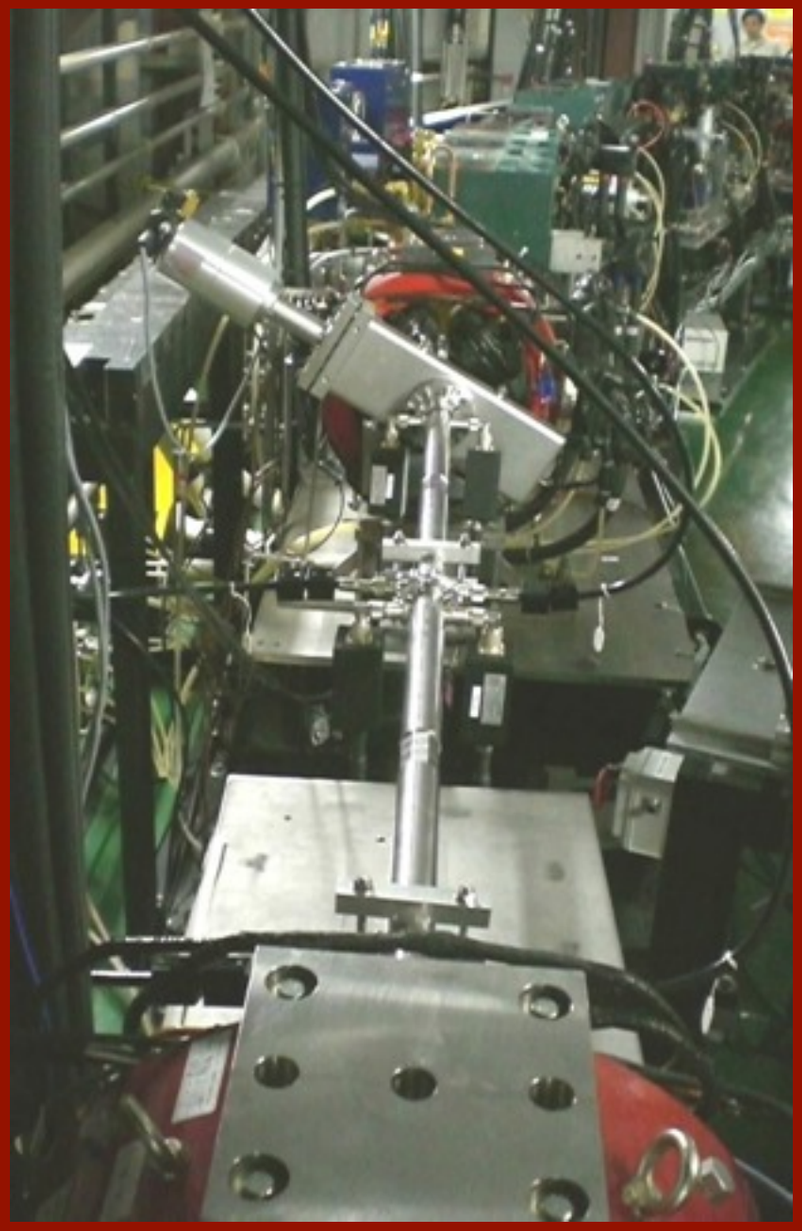
ATF2 beam tuning

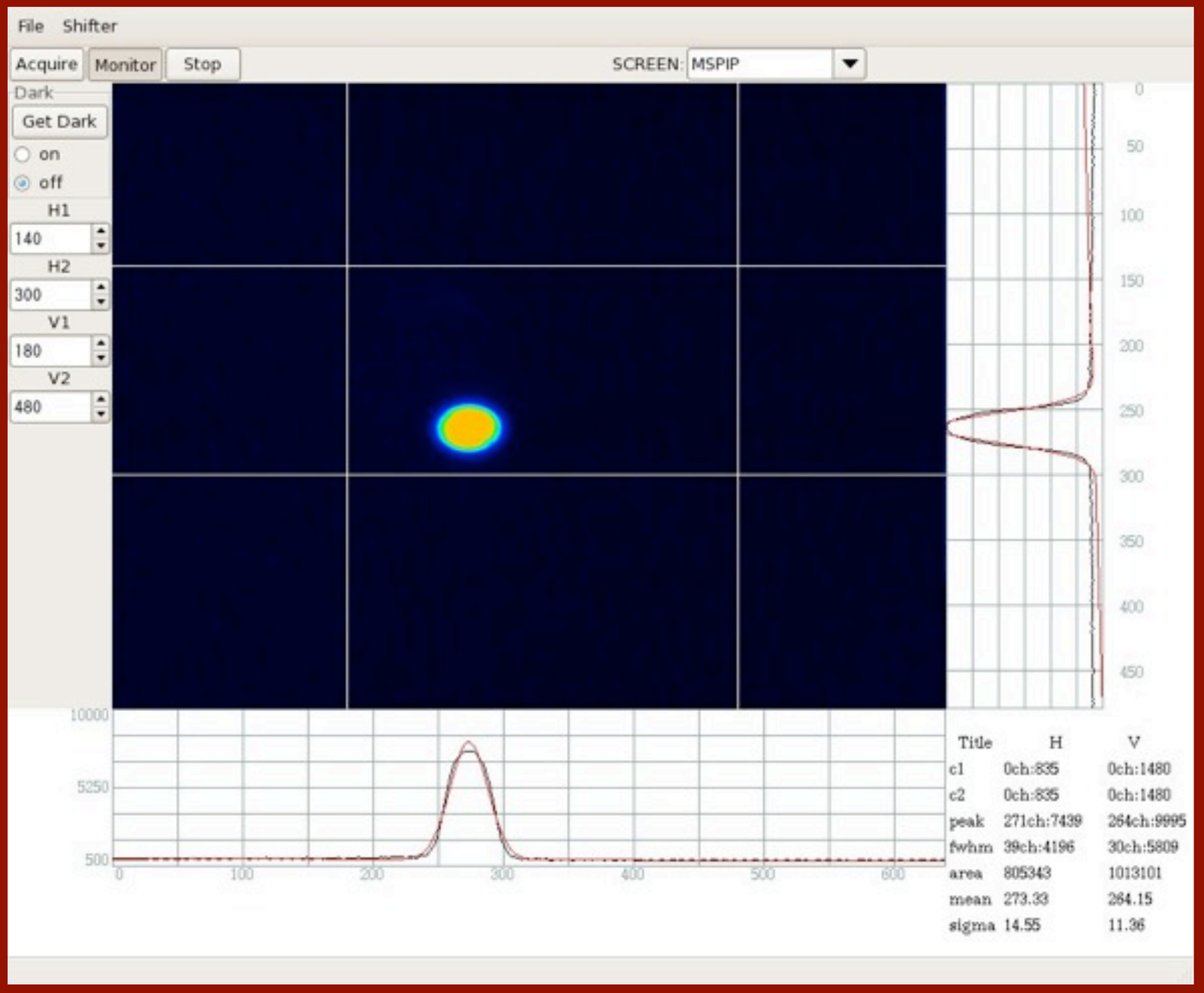
1 2010

Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

50% for ATF2 as a general rule

Beam Extraction succeeded from DR to ATF2 by using Fast Kicker

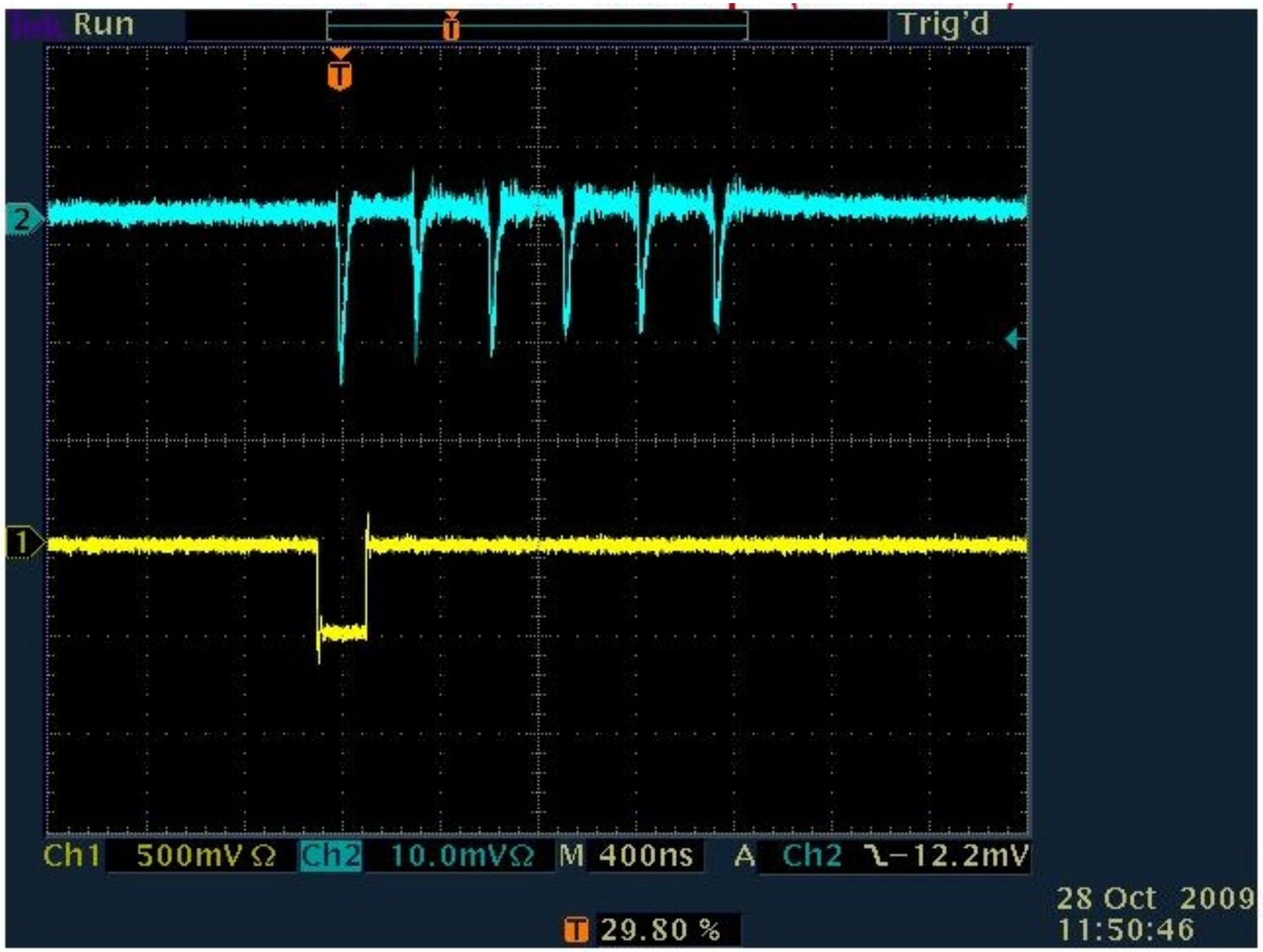




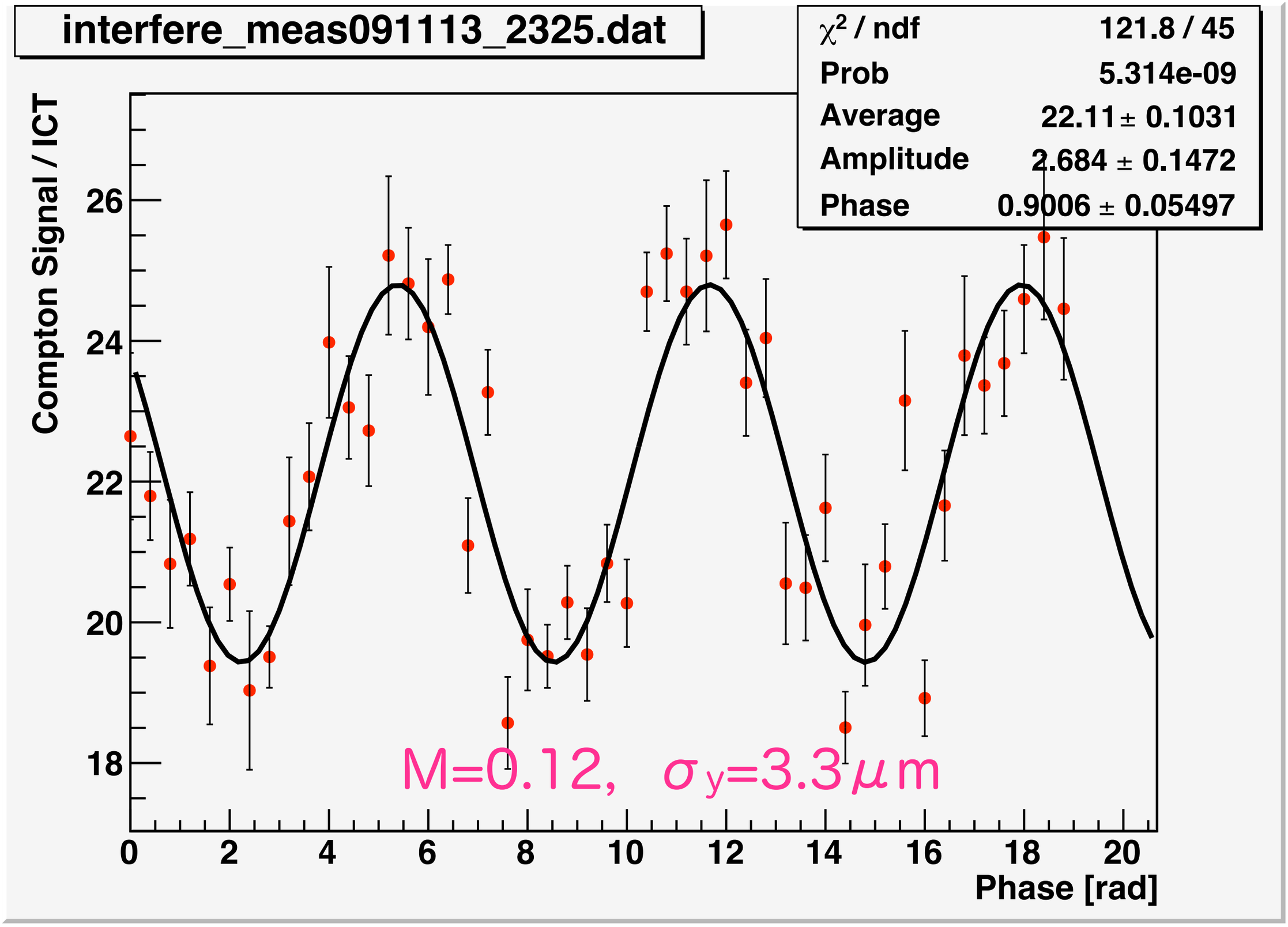
One of the significant technology to realize the International Linear Collider is the fast kicker of the damping ring(DR), which injects/extracts the long bunch train to the DR/ from the DR. The left side picture shows the proto-type of the fast kicker installed in the DR of ATF-KEK. The beam is extracted by using the fast kicker, the right picture shows the beam profile at the end of the ATF2 beam line.

First Multi-bunch Extraction Oct.28

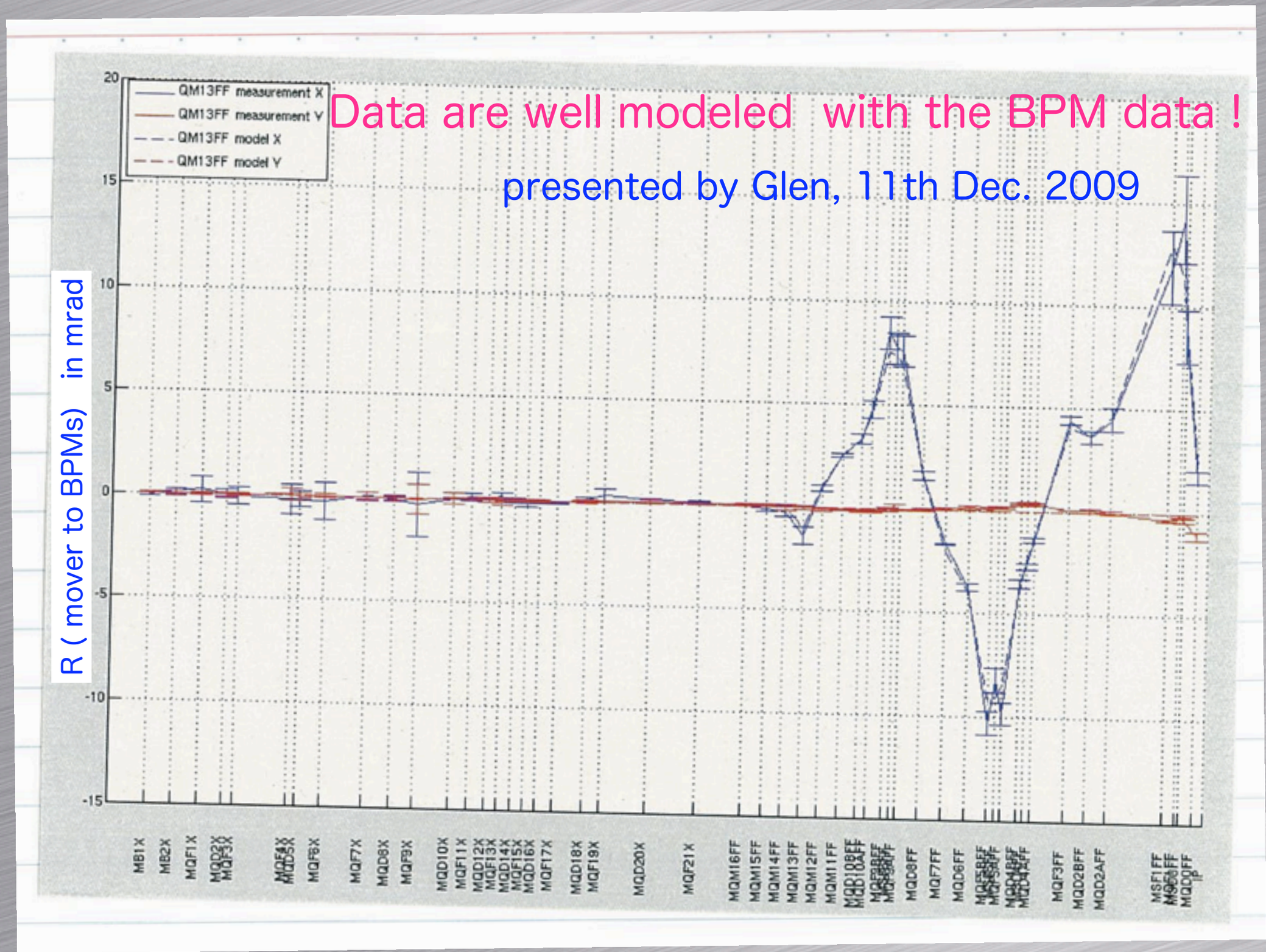
- Bunch interval 5.6ns
- Kicker excitation interval 308ns
- Upper line: bunch charge measured in the extraction line
- Hor: 400ns/div
- Ver: 0.2nC/div



First Interference result by IPBSM



Online Model Check



Data are well modeled with the BPM data !

presented by Glen, 11th Dec. 2009

ATF2 internal milestones, Dec.08

2009 | 2010

dec | jan | feb | mar | apr | may | | oct | nov | dec | jan | feb | mar | apr | may | | oct | nov | dec

- BSM Laser Wire mode commissioned
- First test of fast kicker
- Observe several micron beam size
- BSM 8º (0.25-1.5um) commissioned
- Observe sub micron beam size
- BSM 2º mode (1-6um) commissioned
- Achieve ε_y=24pm beam in DR
- BSM 30º (70-400nm) commissioned
- Extract and preserve of ε_y=24pm
- First observation of ILC-scaled σ_y=75nm
- Achievement of ε_y < 12pm in DR
- Repeat observation of 75nm beam
- Extract & preserve ε_y=12pm beam
- BSM 174º (20-100nm) commissioned
- First observation of design 37nm beam
- Fast kicker system fully commissioned
- Monalisa installed on beamline
- Reliable observation of 37nm beam
- Achieve 2nm resolution of IP BPM
- Evaluate IR position stability to nm level
- Commissioning of Monalisa
- Commissioning of FONT feedback
- Observe of nm stability of IP position
- Initial tests of squeezed -function

achieved

VERY TENTATIVE
to be updated

Session Organization

	14th Dec. Monday	15th Dec. Tuesday	16th Dec. Wednesday	17th Dec. Thursday
9:00 12:00		Milestones in 2009 - 2010	Future Plan 2013 - SC-Q	Re-examination of strategy for next years followed up the TB discussion
13:30 16:00	Introduction -start at 14:00 Comm. status	Milestones in 2011 - 2012	TB/SGC R&D Status Proposal update of SC-Q closed session Conclusion	Updates of commissioning status Joint w. ILC-BDS

16:30, ATF Daily operation meeting

18:00- YearEnd Party

Message on the SC-Q to ATF/ATF2 Members ;

Thus, I would like to propose the following -

1. The importance, the validity, the technical contents of the project, and conformity with the ATF2 schedule are the subject of discussion for the coming TB meeting in December, 2009;

2. However, the go or no-go decision for the SC quad project is to be deferred until the ATF TB meeting next year (May, 2010 or later);.
We hope you understand our situation.

Kaoru Yokoya, Head of KEK LC Office

9th December, 2009

Goals at this meeting

1. Update of “monthly” milestones by 2010

- with experiences so far and the goal of 37nm by end of 2010

2. Detailed plan for sub-systems

- Beam tuning procedure automatically as much as possible
- OTR system as a complementary to the wire scanners
- Stripline BPMs, S-band BPMs : monitoring the stability
- IPBPM, tilt monitor, Monalisa, straightness monitor, LW and FONT etc.

3. Update of the SC-Q as future plan

- Essential program for the ILC and CLIC
- Worldwide collaboration
    - SLAC, BNL, KEK, LAL, LAPP, CERN, Oxford univ. and more

" We have to have a well-structured, realistic, feasible and reasonable plan for this, not just a long to-do list."