



# New skew SX and ATF Alignment status

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**19th ATF2 Project Meeting**  
Jan 13, 2016 at LAL (Remote)





# 2015



## contents

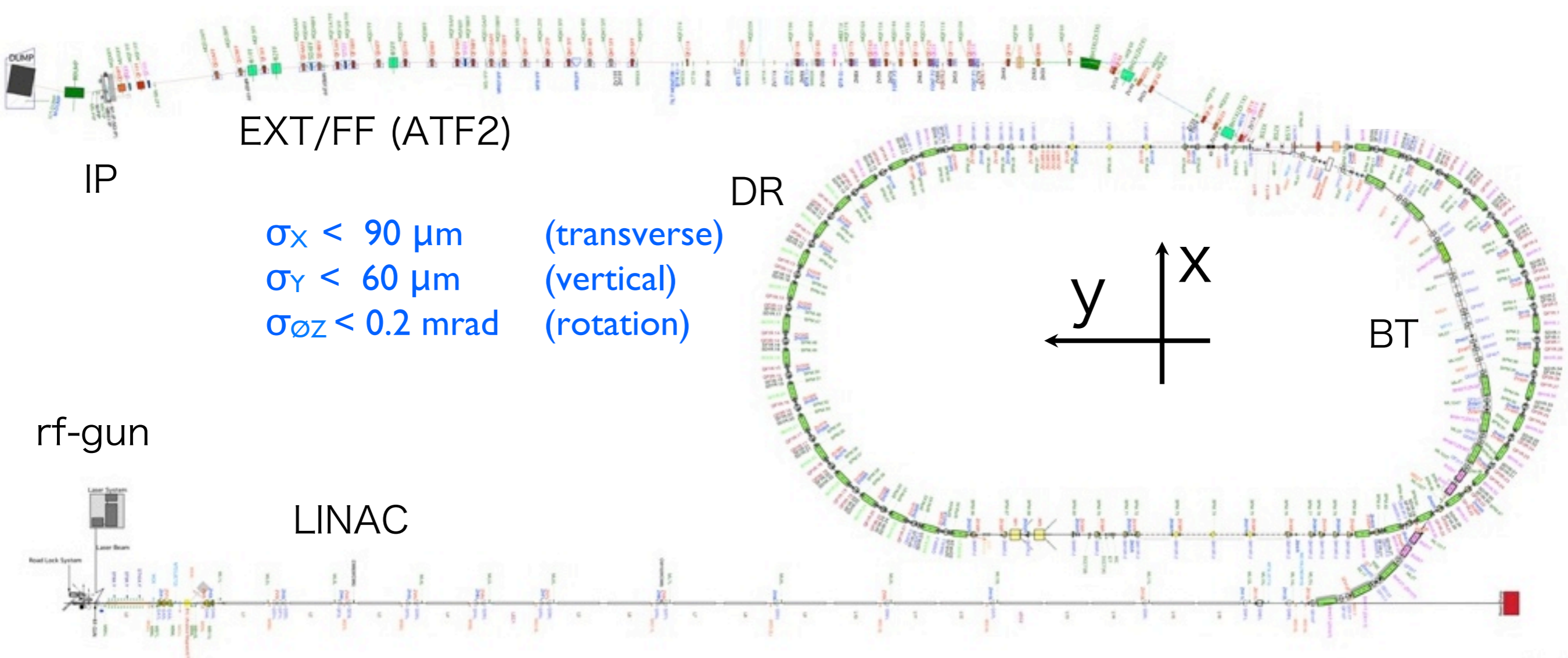
- DR
- Circumference survey (July) / Horizontal Alignment (Oct.)
- EXT/FF ( also a result of a survey)
  - Survey (Sep. Oct)
  - Re-shimming / Changed T-plate to QF1 (Apr.)
- Changed to magnetic pole to SX1-4  
(rough Alignment 2016 Jan)



# ATF



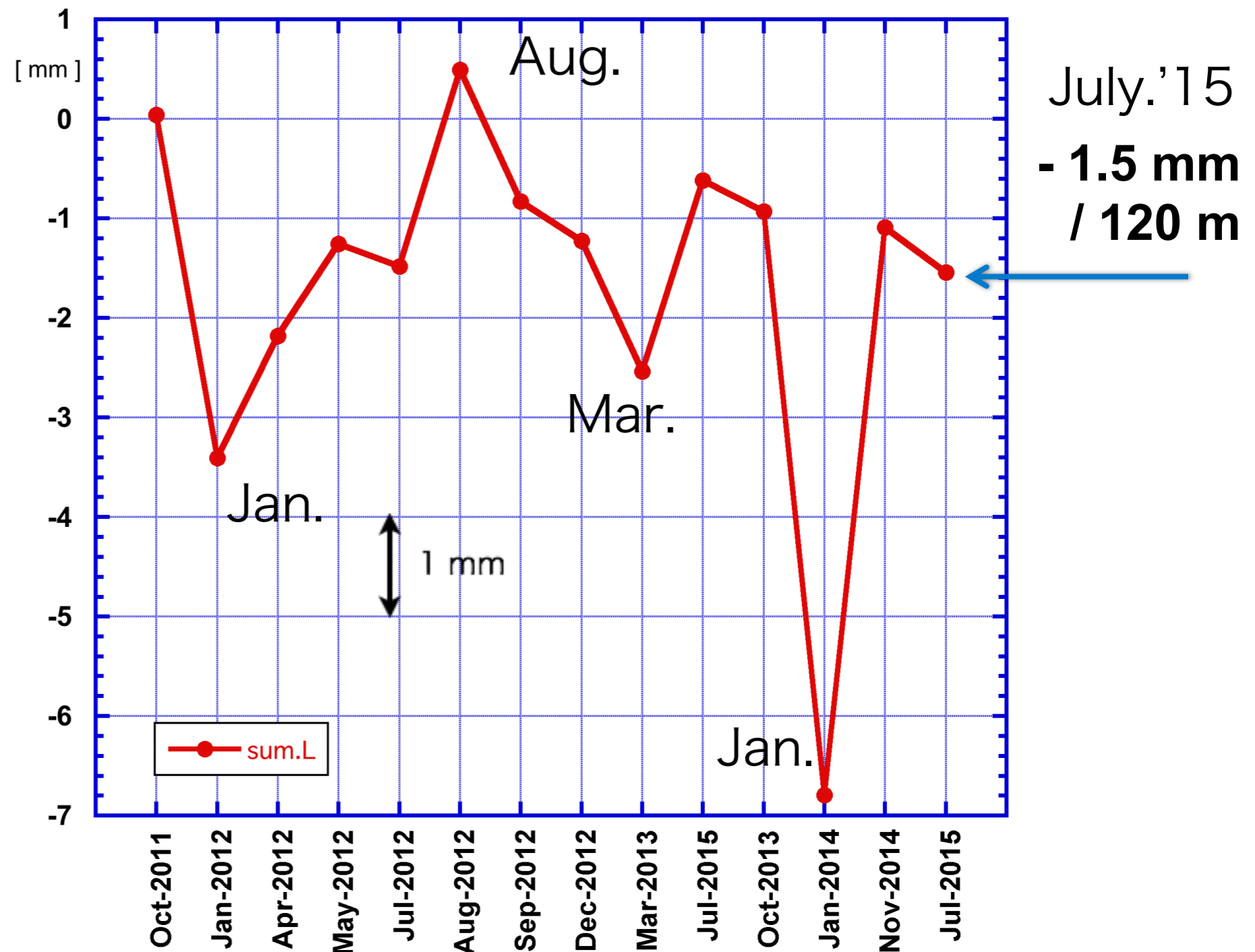
- Origin of alignment coordinates is a center of DR.
- SETTING ACCURACY  
DR Alignment tolerance was evaluated beam tracking simulation.





# DR circumference (meas. of the 8 distance)

Winter shrinks and summer develops.





# DR survey (2015 Summer)



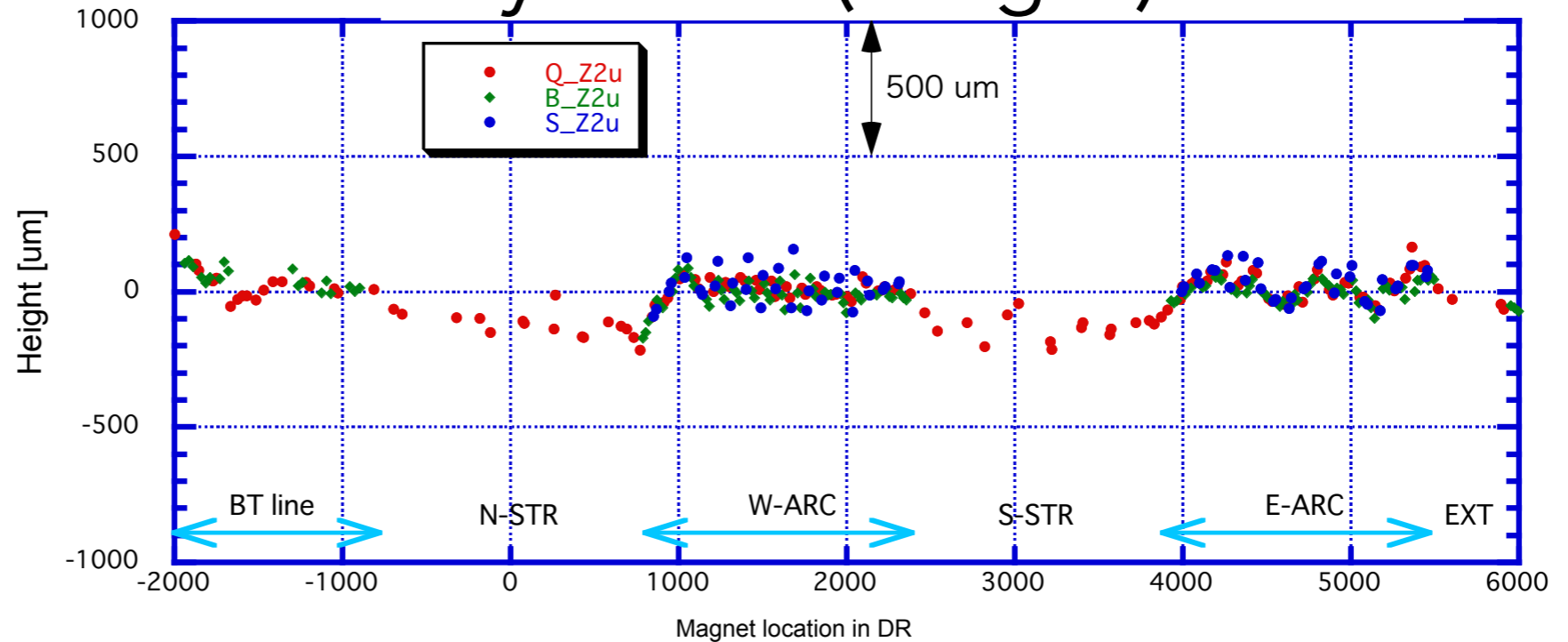
- Alignment changed a little again.

Height. ( $\sigma$ )

all mag = 66  $\mu\text{m}$

Q mag = 81  $\mu\text{m}$

## July 2015 (Height)

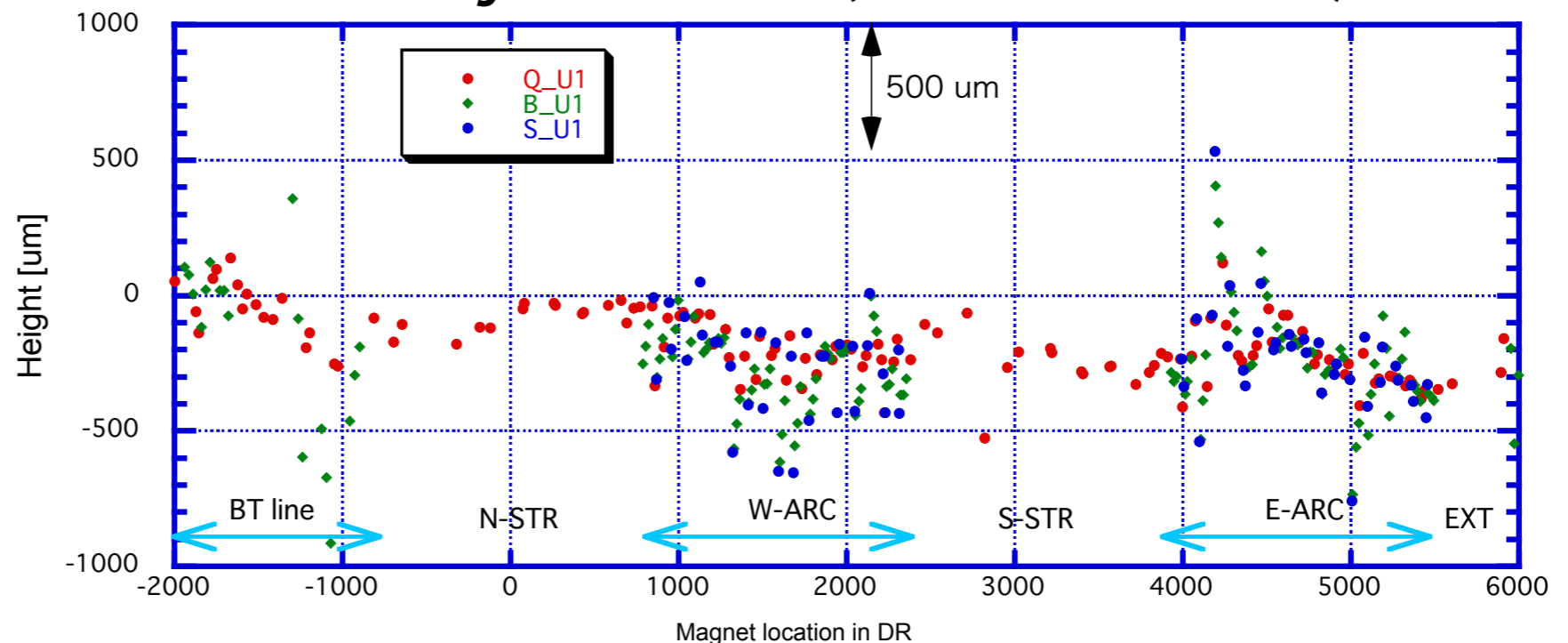


Transverse. ( $\sigma$ )

all mag = 175  $\mu\text{m}$

Q mag = 122  $\mu\text{m}$

## July 2015 (Transverse)



We have alignment in the autumn





# DR alignment (2015 Autumn)



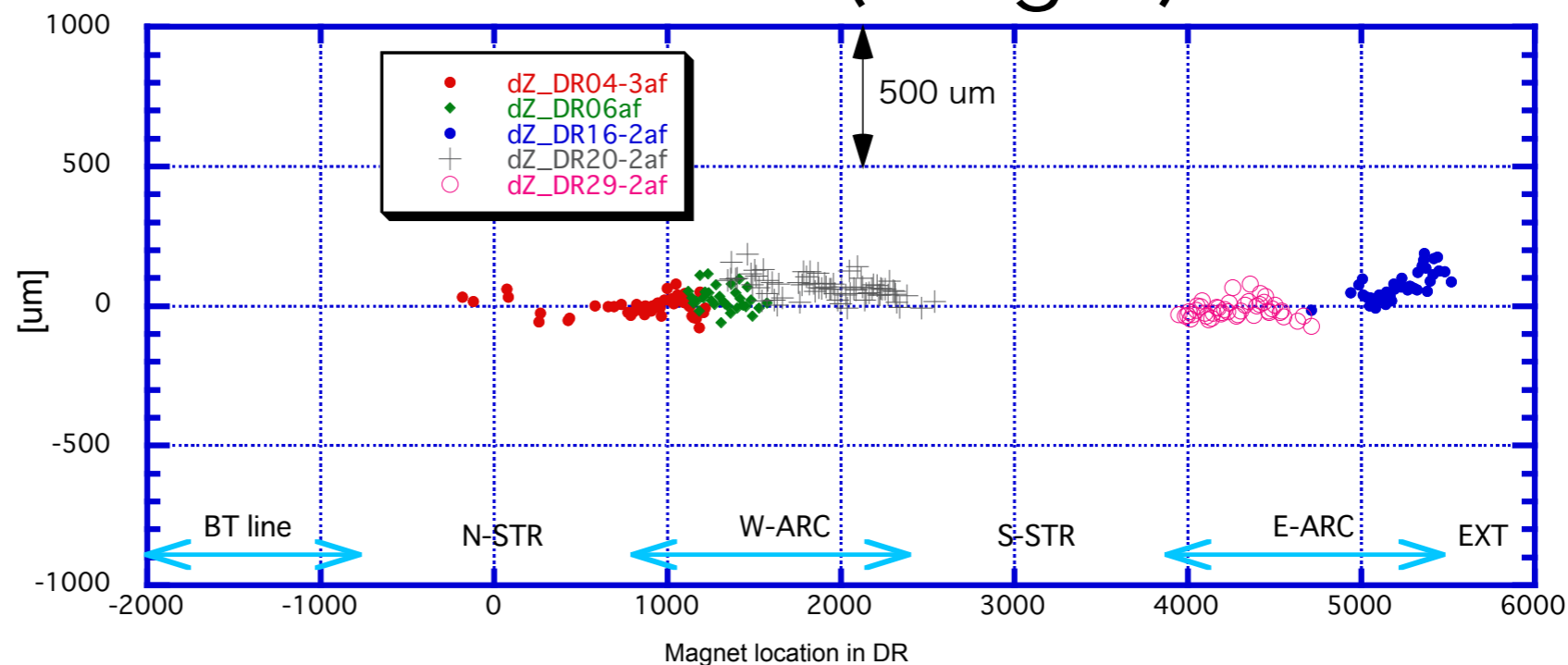
- Main adjustment a transvers direction.

Height

FWHM : 300  $\mu\text{m}$

Q mag  $\leq 81 \mu\text{m}$  ?

## Nov. 2015 (Height)

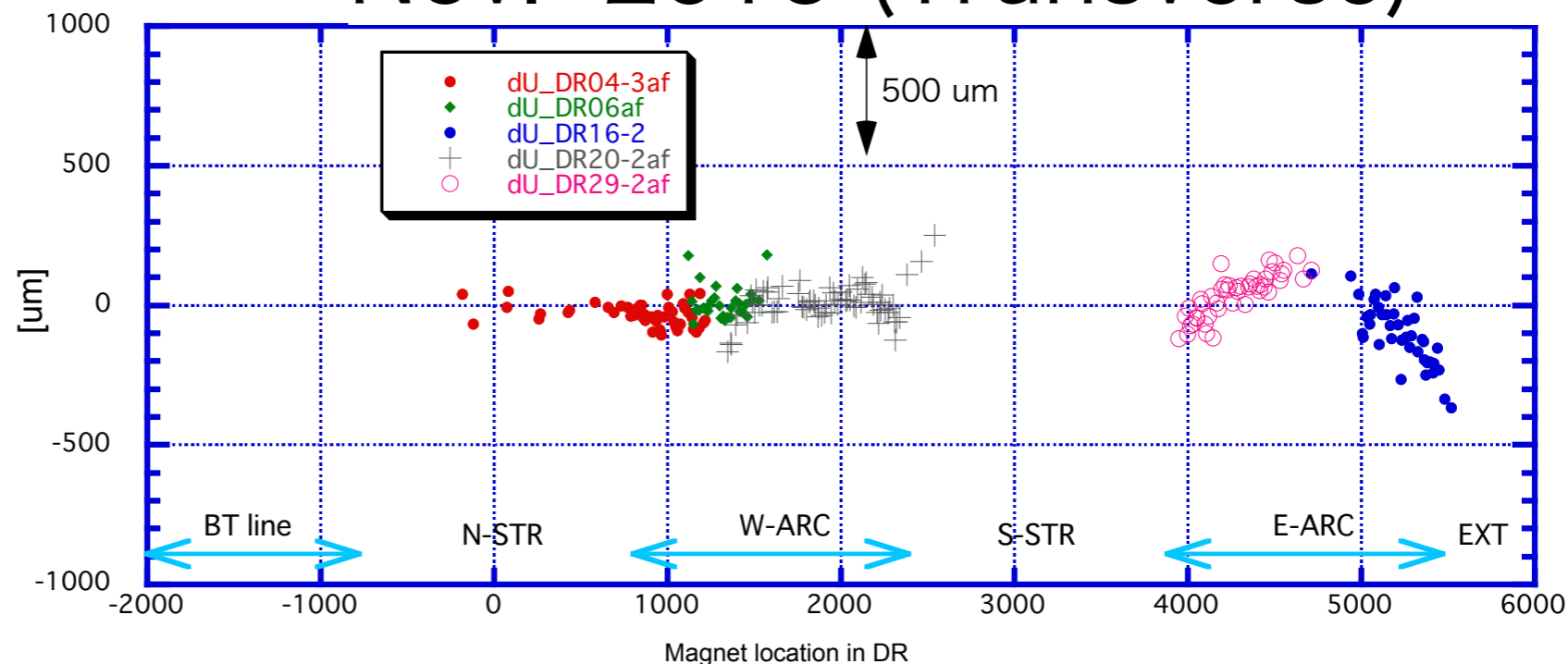


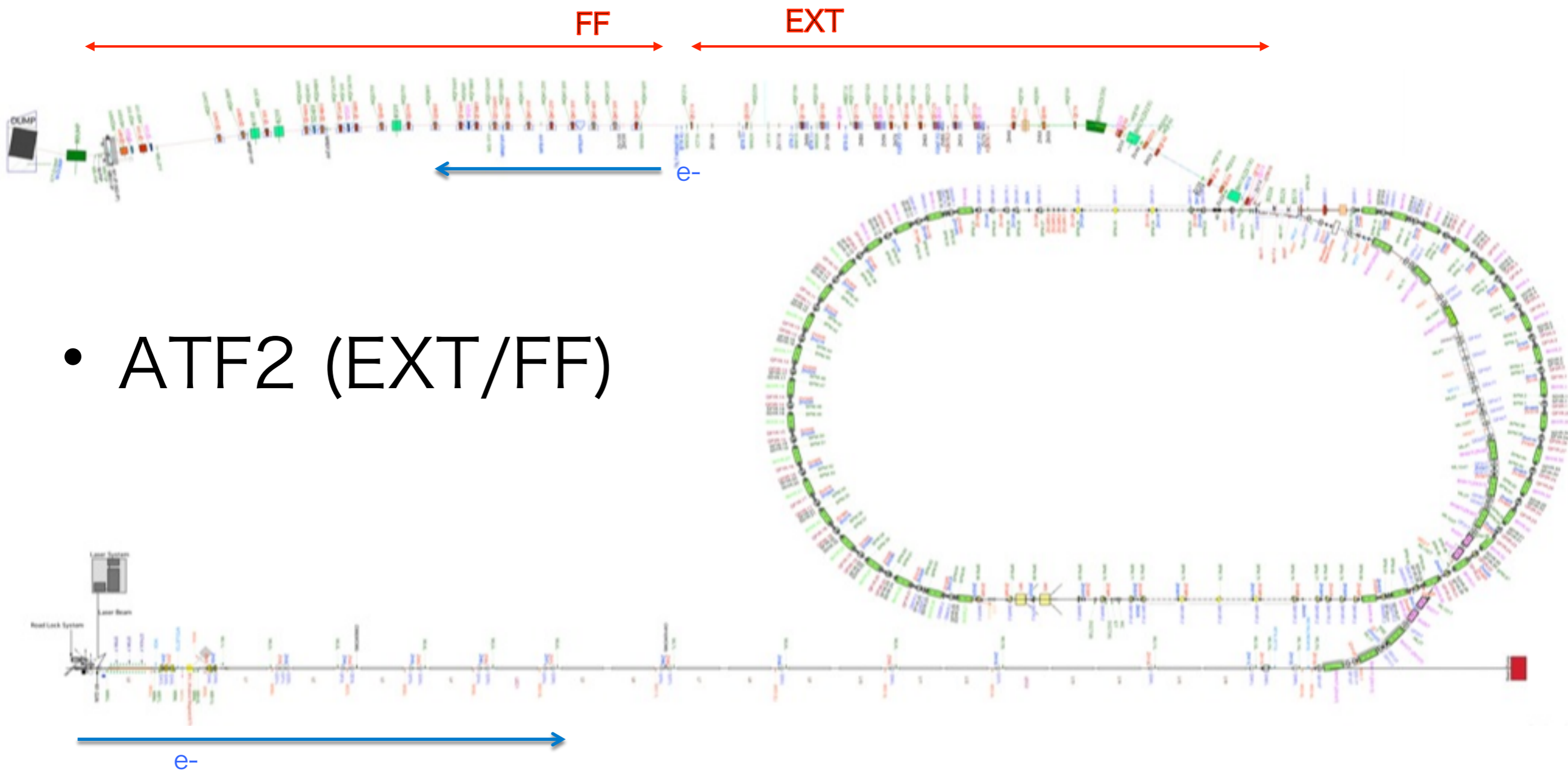
Transverse

Smoothly connected

We does not survey after alignment .

## Nov. 2015 (Transverse)



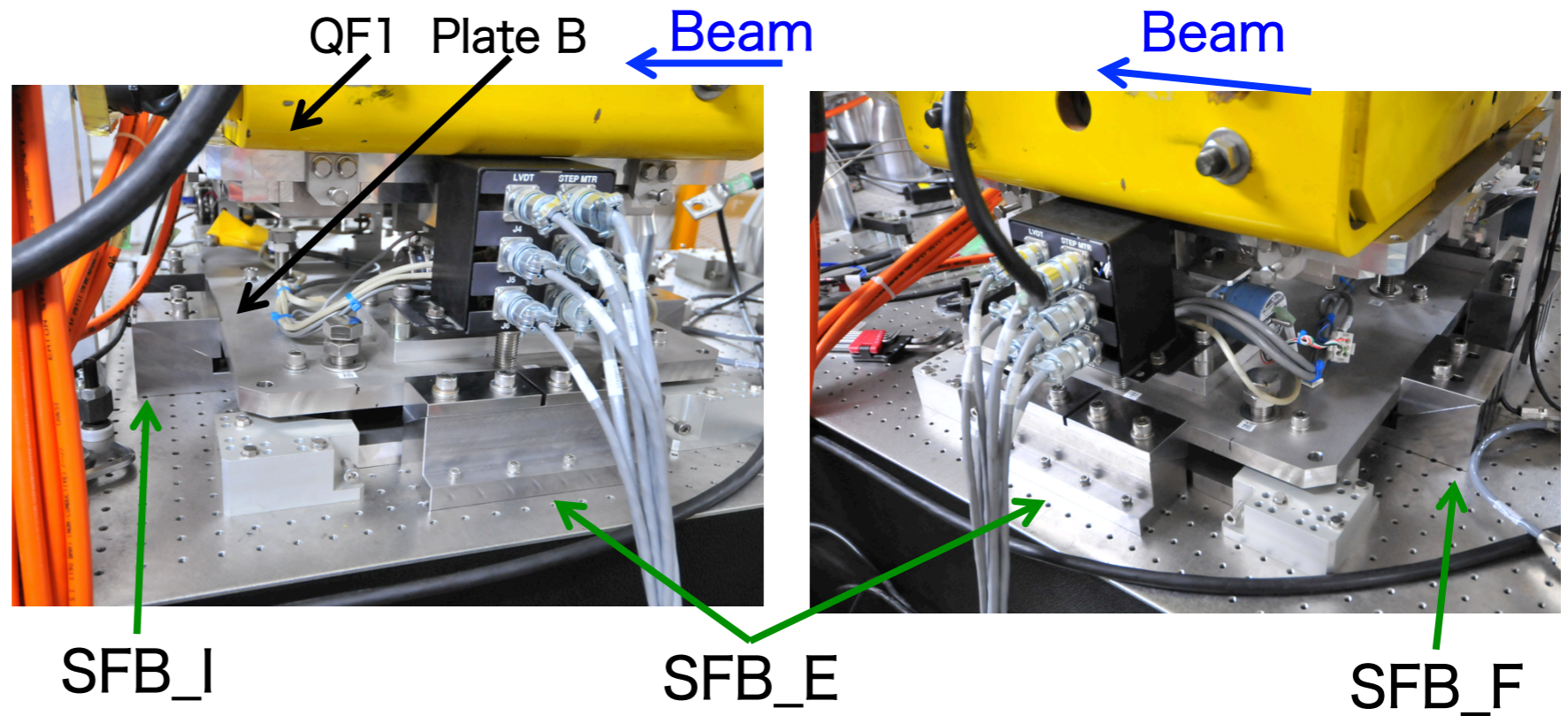




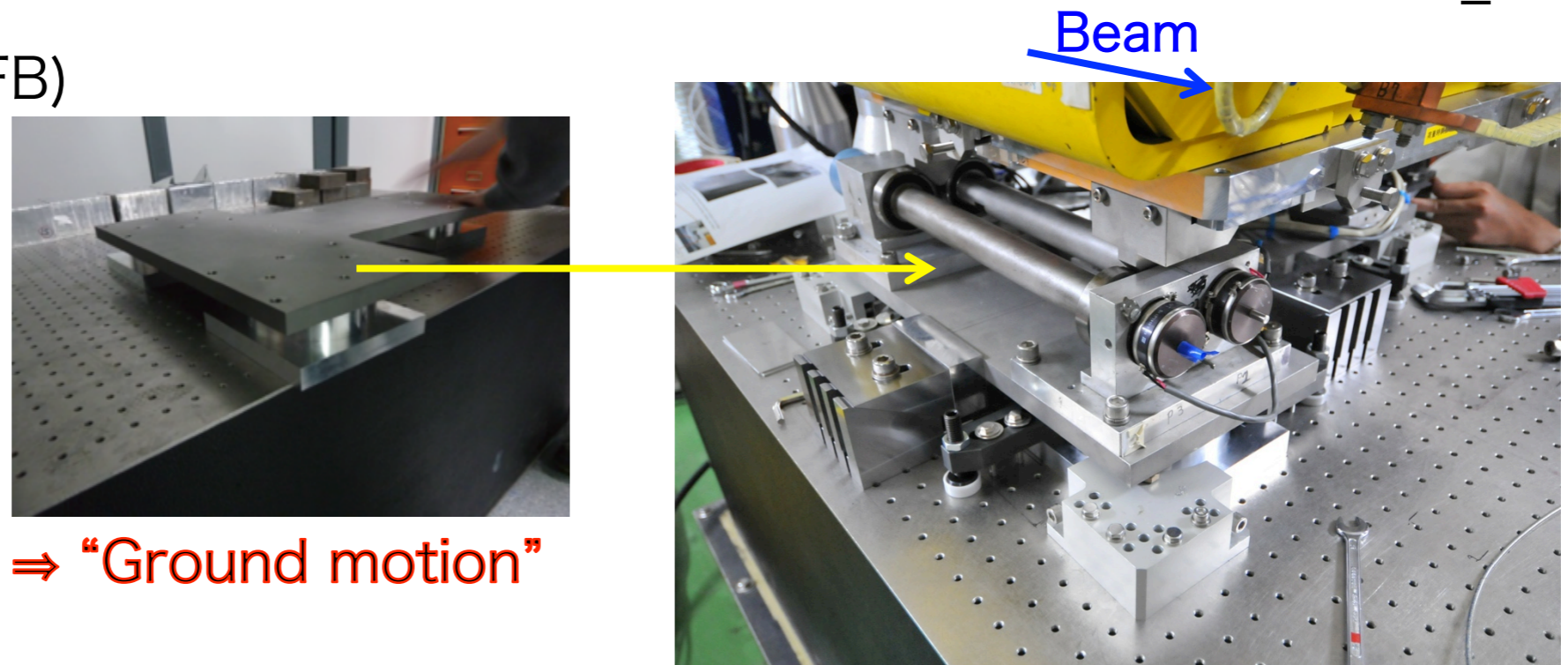
# QF1 Re-shimming



Case 1 [Apr. 2015]  
Setting for  
Side Fix Blocks (SFB)



Case 2 [May 2015]  
Setting for  
LAPP-support and (SFB)



The results later ⇒ "Ground motion"







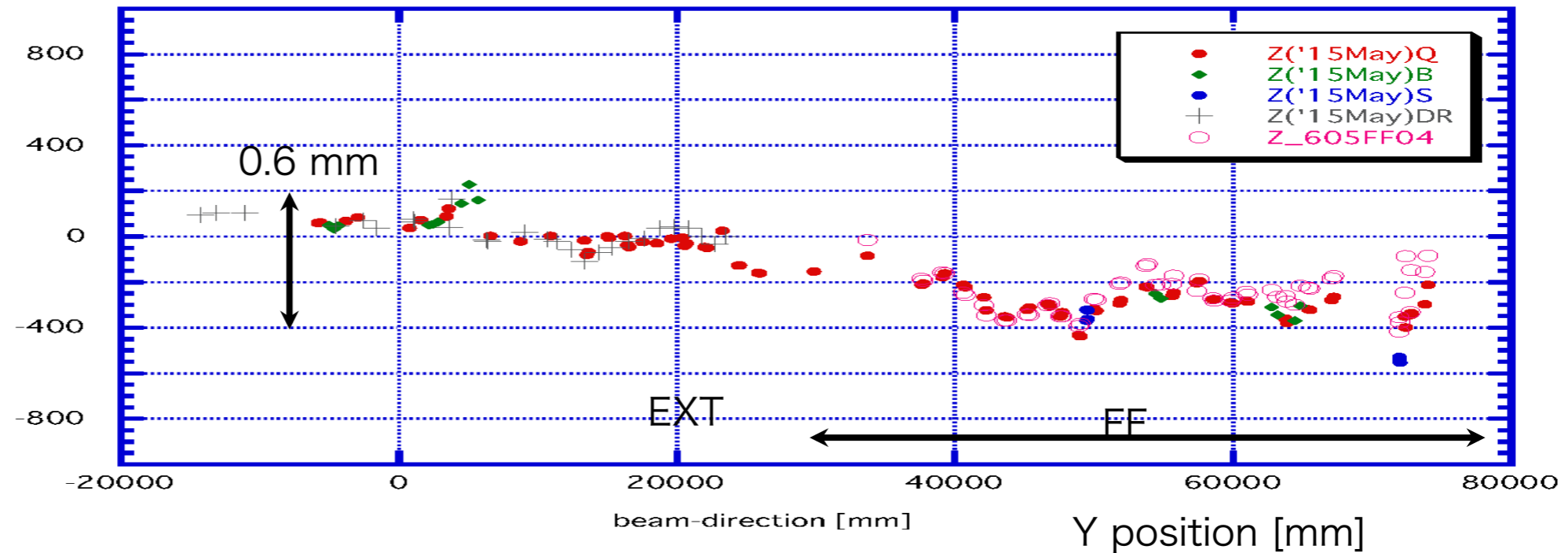


# ATF2 survey (2015 Spring)



Deviation of Magnets

## May 2015 (Height)



Height ( $\sigma$ )

all mag = 151  $\mu\text{m}$

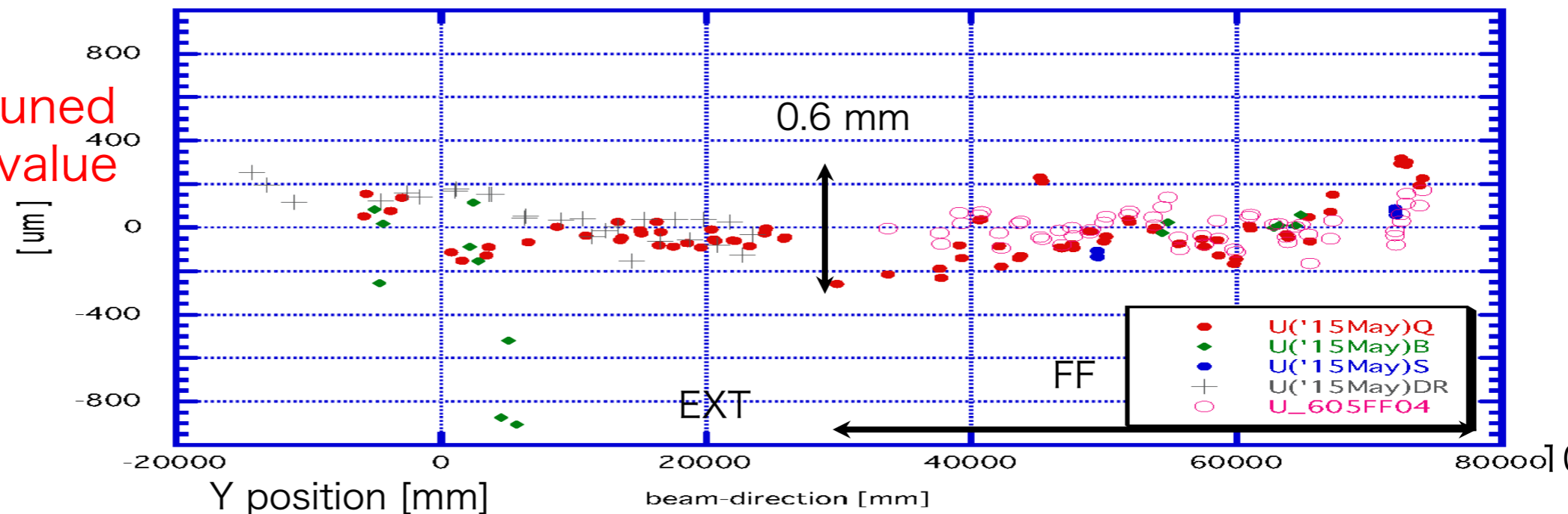
FF mag = 85  $\mu\text{m}$

Transverse ( $\sigma$ )

all mag = 122  $\mu\text{m}$

FF mag = 69  $\mu\text{m}$

## May 2015 (Transverse)



Oct. RUN ~

FF mag were fine-tuned by the correction value to Active-Mover.

=> within 100 $\mu\text{m}$  !





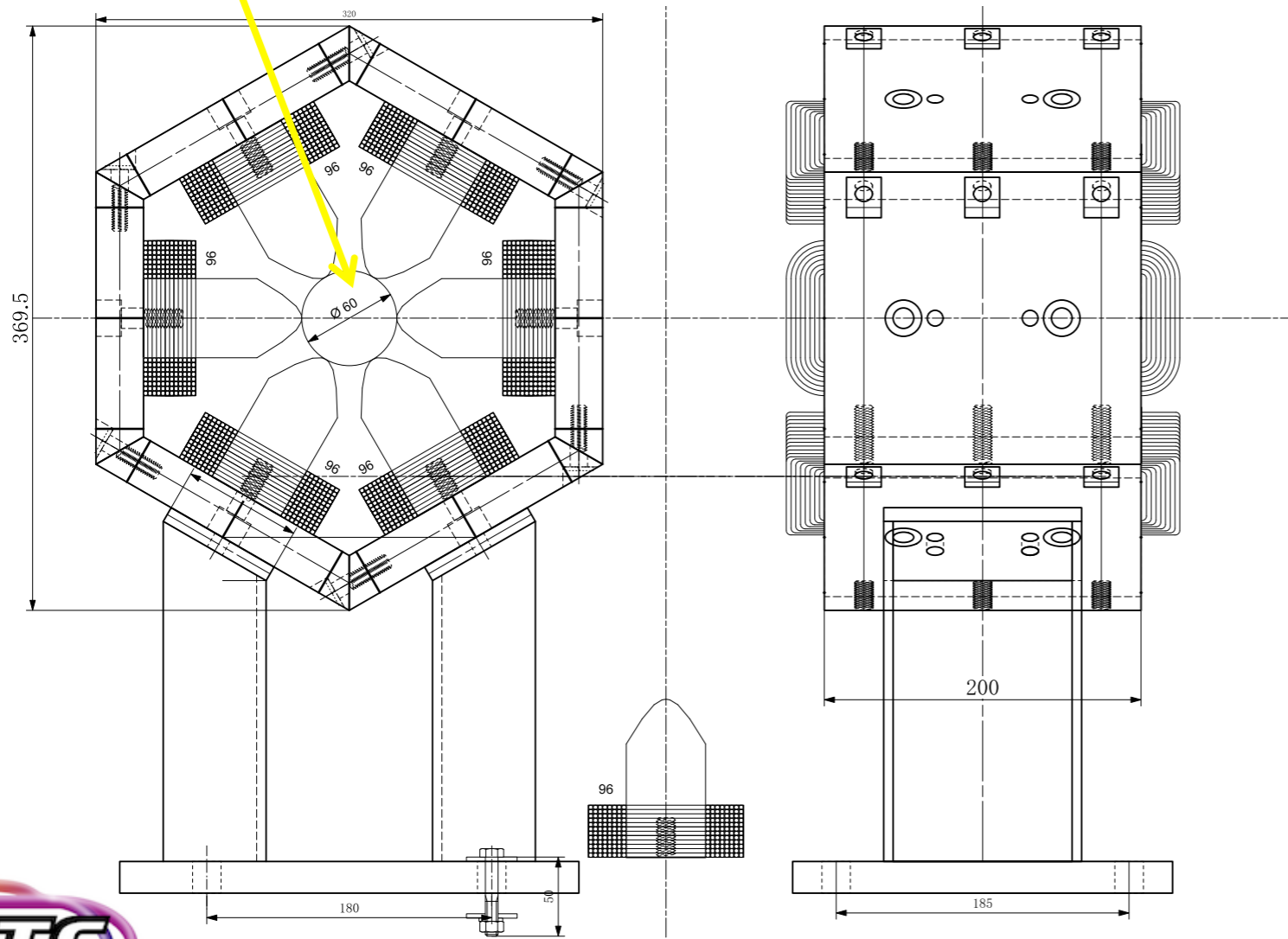
# Skew SX re-make



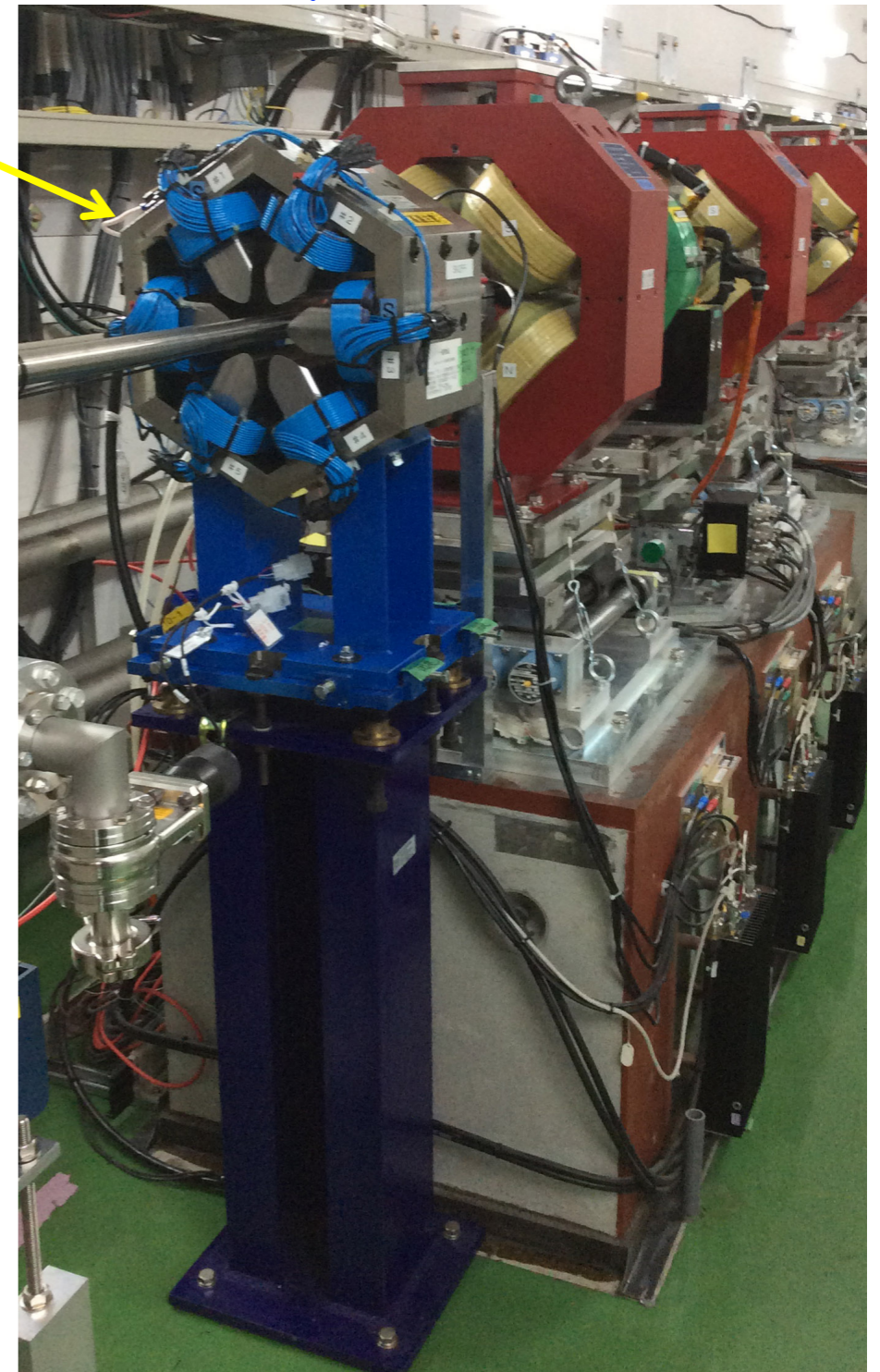
Jan. 2016

Change of the magnetic poles of the SX1-4FF  
(Now working)

$\Phi 160 \rightarrow \Phi 60$  mm



Beam





# Summary

- DR circumferential length of the spring is 1.5mm shorter than the design as usual (July 2015)
- DR alignment error is increased . The horizontal direction it was mainly alignment . Still , the measurement of the confirmation is not performed . However , we have to smooth all DR. (Oct. 2015)
- QF1FF support of change (April – May 2015)  
Re-shimming, and exchange to T-plate (LAPP support)
- Exchange of SF5FF (Aug. 2015)  
From SLAC type to STF type
- Alignment result of ATF2, (May-Oct. 2015)  
Height ( $\sigma$ ) : all mag = 151 um / FF mag = 85 um  
Transverse ( $\sigma$ ) :: all mag = 122 um / FF mag = 69 um
- And , we have set the correction value of FF-Active-mover.  
If set error has become smaller.
- Changed of the magnetic poles of the SX1-4FF  
Inter-pole distance from  $\phi 160$  to  $\phi 60$  mm, 200um accuracy  
( Rough alignment, 2016 Jan. ~ Now working)





- Thanks for your attention!

