Short report on FD magnet alignment

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Short report on FD magnet alignment

- All SXs and FD Qs has SLAC standard datum and has no capability to fit the ATF alignment laser system.
  - We had no measurement tools for SLAC datum.
  - Initial alignment of FD magnets was done by using a rotating-laser tool and a digital level monitor. Accuracy is ~0.5 mm for H and ~0.01 mm for V .
  - Initial alignment of FF SXs was done by a rotating-laser tools.
  - Measurement tool for SLAC datum was ordered in Dec 2009.
- Measurement tool was delivered on the end of March.
- Alignment by using SLAC datum will be started soon.
  - Do we need to realign the FD quads?

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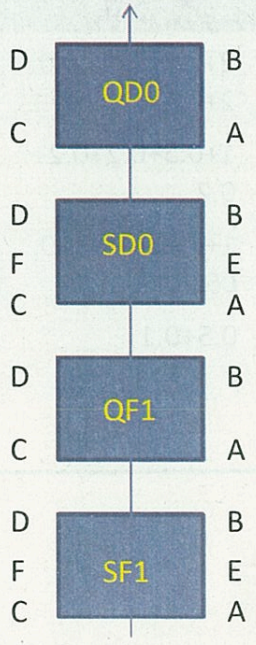
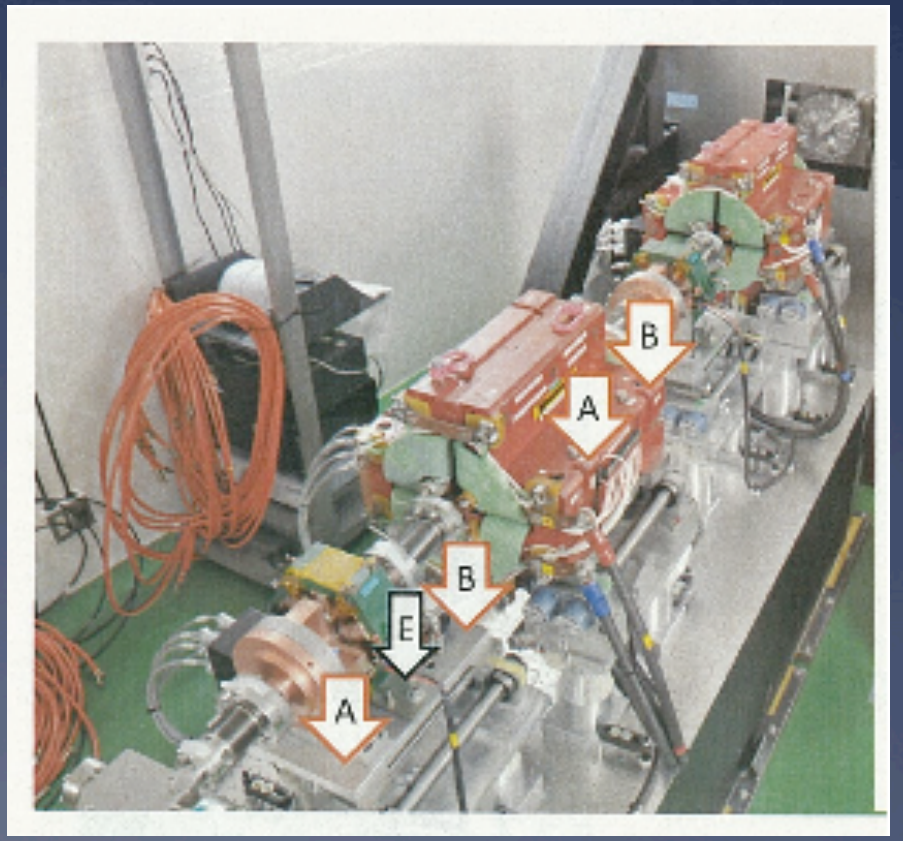
TOOLS

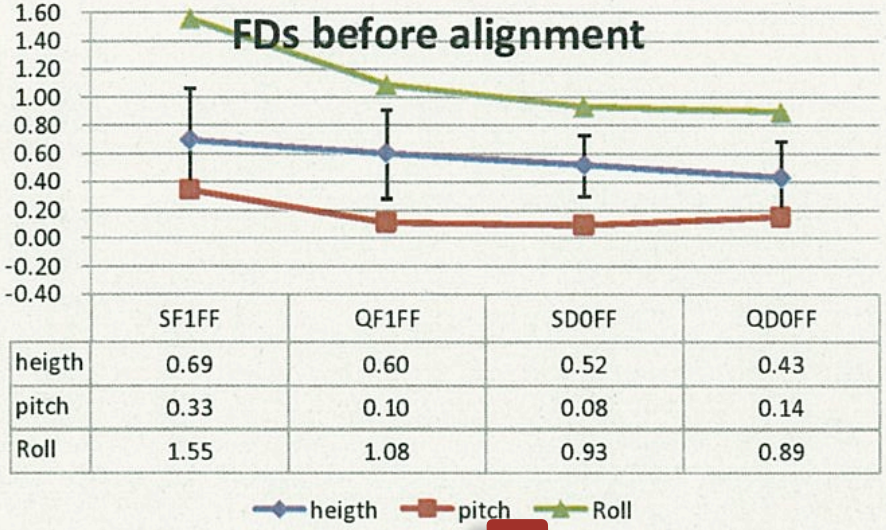
- Digital level: DNA03
  Level measurement
  (4 or 6 points meas.)
- Rotating Laser: RL3G
  Horizontal marker
- Set to 5V on ActMvs
  (at middling)
- Base level = QD4A,4B
  (Reference height)



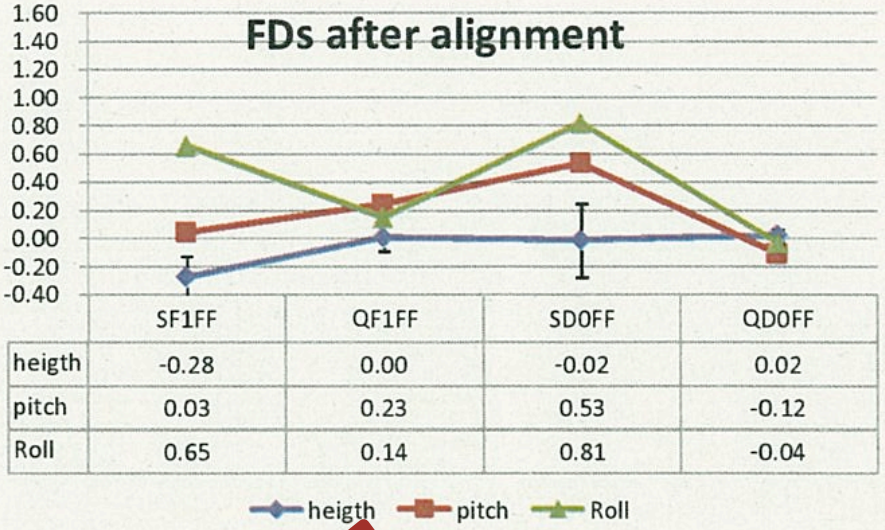


by S. Araki

Results



	SF1FF	QF1FF	SDOFF	QDOFF
heigth	0.69	0.60	0.52	0.43
pitch	0.33	0.10	0.08	0.14
Roll	1.55	1.08	0.93	0.89



	SF1FF	QF1FF	SDOFF	QDOFF
heigth	-0.28	0.00	-0.02	0.02
pitch	0.03	0.23	0.53	-0.12
Roll	0.65	0.14	0.81	-0.04

Insert sims

Magnet	A	B	C,D or F	Horizontal
QD0	2+2+0.2+0.2+0.2+0.1	5+0.2	2+2+0.5+0.2+0.2+0.05	0-0.2mm
SD0	1+0.5+0.2+0.2+0.2	1+0.5+0.2+0.1	1+0.5+0.2+0.2+0.05	+/-0.5mm
QF1	1+1+0.5+0.1+0.05	2+0.2+0.2+0.2+0.2	2+1+0.5+0.2+0.1	0-0.2mm
SF1	0.5+0.1	1	0.5+0.2+0.2+-0.05	+/-0.5mm

Checked
With Rotating Laser

by S. Araki

We got a CMM (coordinate measuring machine) on March 2009.
It will be used for the alignment of SLAC magnets

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0.074 mm

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Alignment of SLAC QDs and SXs will be tried soon.