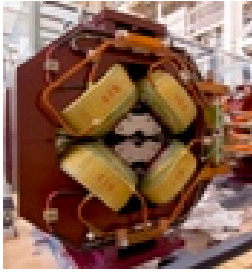


1. QM7 off-center, multipole effect
baseline model of QM7,
will be studied by Mark and Mauro
correction by 4 or 2 skew Qs
4 are needed to correct coupling generated in DR
2 will be installed in next summer.
2. 6-pole and 10-pole as well as 12 pole in FD
requires gap distance $< 20\mu\text{m}$
needs detailed information from Cherrill,
We would like know how the reproducibility has been tested at SLAC.
to be discussed at next weekly meeting, 8th October .
3. Schedule of software readiness
High priority tasks, when as milestones ?
to require periodically meetings and reports
to be discussed at the commissioning schedule session.
We must have hardware related ones before the commissioning,
1 November.



Machining errors must be very small; i.e. $25\mu\text{m}$

PREDICTIONS USING HALBACH's 1969 "perturbations" paper	Sextupole	Octupole	Decapole (10-pole)	12-pole
ATF2 Tolerances QF1 QD0	9.56E-05 -5.26E-05	1.01E-04 -1.58E-04	2.46E-04 -1.10E-03	2.46E-04 -3.08E-03
Single Poletip 1 mil Radial misplacement	8.15E-05 -8.15E-05 skew	-1.33E-21 1.08E-05 skew	4.89E-06 4.89E-06 skew	1.14E-06 2.09E-22 skew
Single Poletip 2 mil Radial	1.63E-04 -1.63E-04 skew	-2.65E-21 2.16E-05 skew	9.78E-06 9.78E-06 skew	2.28E-06 4.19E-22 skew
Single Poletip 1 mil Azimuthal	-8.15E-05 -8.15E-05 skew	-3.41E-05 -4.18E-21 skew	-4.89E-06 -4.89E-06 skew	-1.35E-22 7.35E-07 skew
Single Poletip 2 mil Azimuthal	-1.63E-4 -1.63E-4 skew	-6.82E-05 -8.35E-21 skew	-9.78E-06 9.78E-06 skew	-2.70E-22 1.47E-06 skew
All 4 Poletips ->Sextupole. Worst Case 1 mil Rad, Azi	-6.52E-04 -2.40E-19 skew	-1.06E-20 0.0 skew	-3.91E-05 -3.26E-20 skew	1.08E-21 4.05E-21 skew
All 4 Poletips ->Sextupole. Worst Case 2 mil Rad, Azi	-1.30E-03 -4.80E-19 skew	-2.12E-20 0.0 skew	-7.82E-05 -6.52E-20 skew	2.16E-21 8.09E-21 skew
All 4 Tips Oct. Worst Case 1 mil Azimuthal	-7.99E-20 1.28E-19 skew	-1.36E-4 -6.68E-20 skew	1.92E-21 -2.88E-21 skew	-2.07E-21 0.0 skew
All 4 Tips 12-pole Worst Case 2mm Radial	-5.12E-18 -1.13E-17 skew	4.24E-19 0.0 skew	1.84E-19 3.68E-19 skew	3.65E-04 2.68E-19 skew



ATF2
Magnets

Final Multipole Measurements on both FD quads at $r=1\text{cm}$, in %

Magnet Name	Sextupole/quad	Octupole/quad	10pole/quad	12pole/quad	20pole/quad
Tolerance (tightest)*	<0.03	<0.025	<~0.01	<0.05	<0.12
QD0 at 132.2 amps	0.0255	0.0052	0.007	0.036	0.0027
QF1 at 77.5 amps	0.0274	0.0058	0.0128	0.036	0.0027

* Multipole tolerances arrived at by many iterations between magnet engineer and beam dynamics experts. E.g. original sextupole tolerance was too small to be measured even. If keep below quoted tolerances will have acceptable beam spot size- see next slide.



ATF2 Magnets

Magnetic measurements also measure the angle of the first south pole of any multipole, relative to horizontal axis

- The multipole angle measurements indicate there is significant *skew* sextupole mixed in with the normal sextupole.
- Glen White has modeled the beam passing through QF1 & QD0 [mean and rms from 100 seeds]:
 - 36.7 +/- 0.4 nm spot with perfect quads -> 42 +/- 4 nm with these multipoles, and no re-tuning
 - Glen is confident that when the FD sextupoles strength and roll (using their magnet movers) are adjusted to compensate for the unwanted sextupoles in QF1 & QD0 then the spot size will be restored.

In order to to have effectively machine time, we will switch to the small beam optics in middle November,

If hardware problem happens, work can be done in January, including during the fast kicker studies.

fast kicker 2 weeks in Jan.2009

DR emittance in November

3 graduate students

- 4 shifts for IP-BSM

- 1 for cavity Compton scattering in DR - study in November ?

(6 or more shifts from SLAC)

1 for FS, Glen

3 for Steve, FS, eddy current,

2 for QM7R and beta matching

2 for BBA

2 for cold-BPM studies, Jan 2009 - move to Nov.?

In 12 November, we will have a dedicated meeting to discuss on the schedule of beam studies in December.