Question: omit short dipole correctors & replace with quad & skew-quad?

Sextupole Winding
(1 of 4 layers shown)

L_{mag} = 100 mm

Octupole Winding
(1 of 4 layers shown)

Skew-Sextupole Winding
(Both layers shown)

Dipole Winding

Skew-Dipole Winding

Decrease # of turns?

L_{mag} = 110 mm

L_{mag} = 98 mm

L_{mag} = 76 mm

L_{mag} = 88 mm
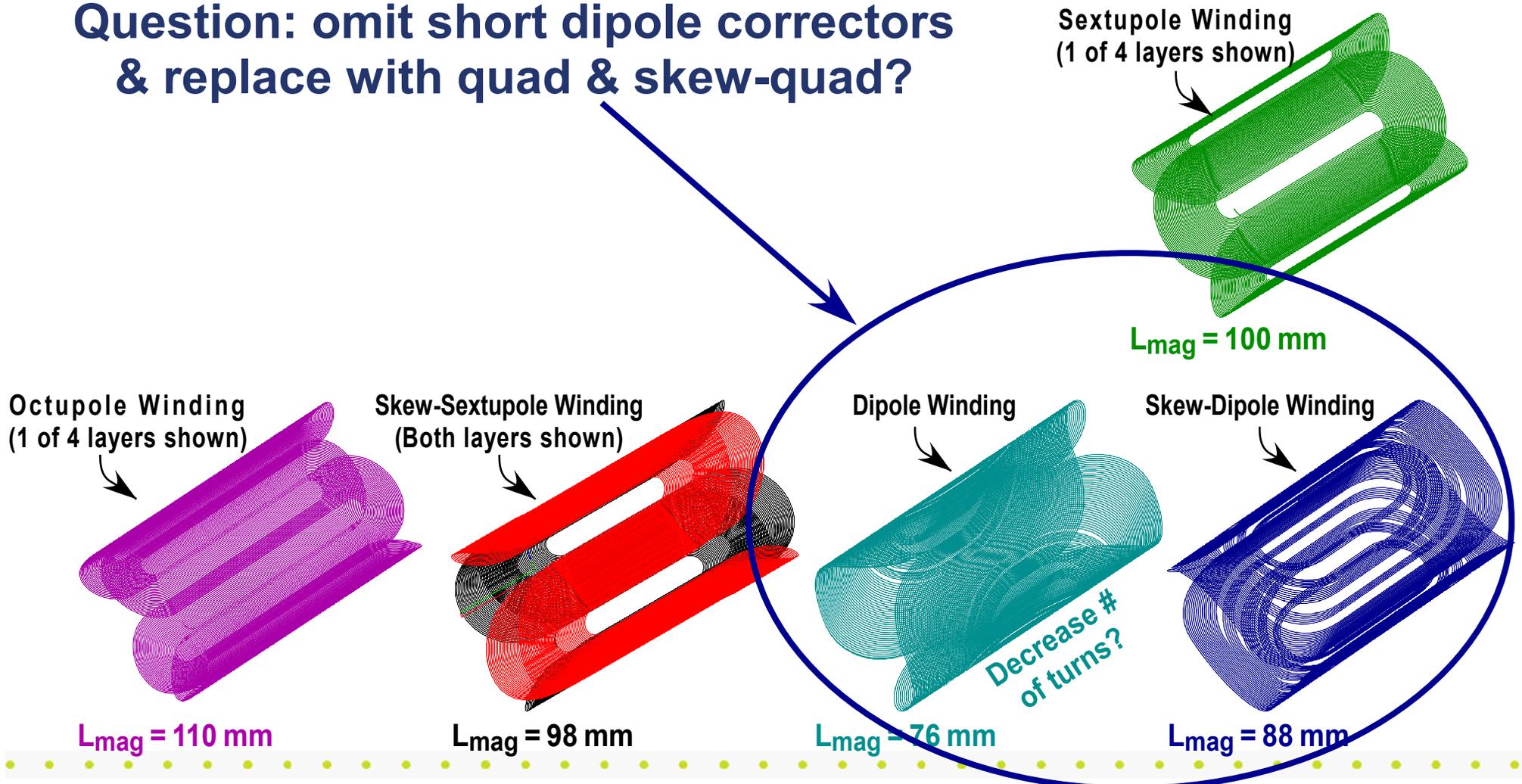
Gluckstern's skewless variable PMQ

ø/2   -ø/2   ø/2   -ø/2   ø/2
d   d   d   d
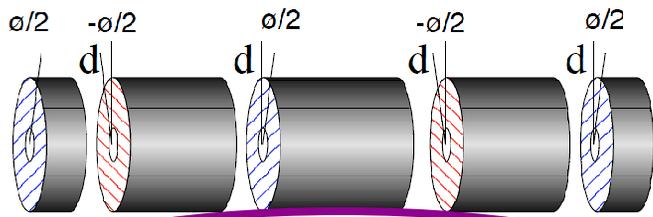
$$M = R \cdot M2 \cdot R^{-2} \cdot M1 \cdot R^2 \cdot M0 \cdot R^{-2} \cdot M1 \cdot R^2 \cdot M2 \cdot R^{-1}$$

$\frac{\sqrt{5}-1}{}$ $\frac{\sqrt{5}+1}{}$ 4 $\frac{\sqrt{5}+1}{}$ $\frac{\sqrt{5}-1}{}$

4x4 matrix: $M = \begin{pmatrix} Mxx & O^5 \\ O^5 & Myy \end{pmatrix}$ when d=0.
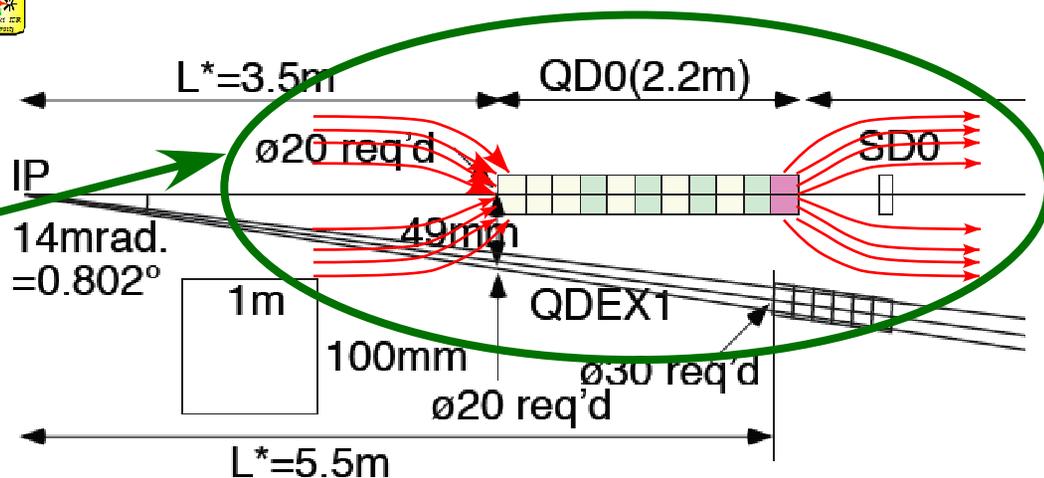
R.L. Gluckstern and R.F. Holsinger: Adjustable Strength REC Quadrupoles, IEEE Trans. Nucl. Sci., Vol. NS-30, NO. 4, August 1983, http://epaper.kek.jp/p83/PDF/PAC1983_3326.PDF
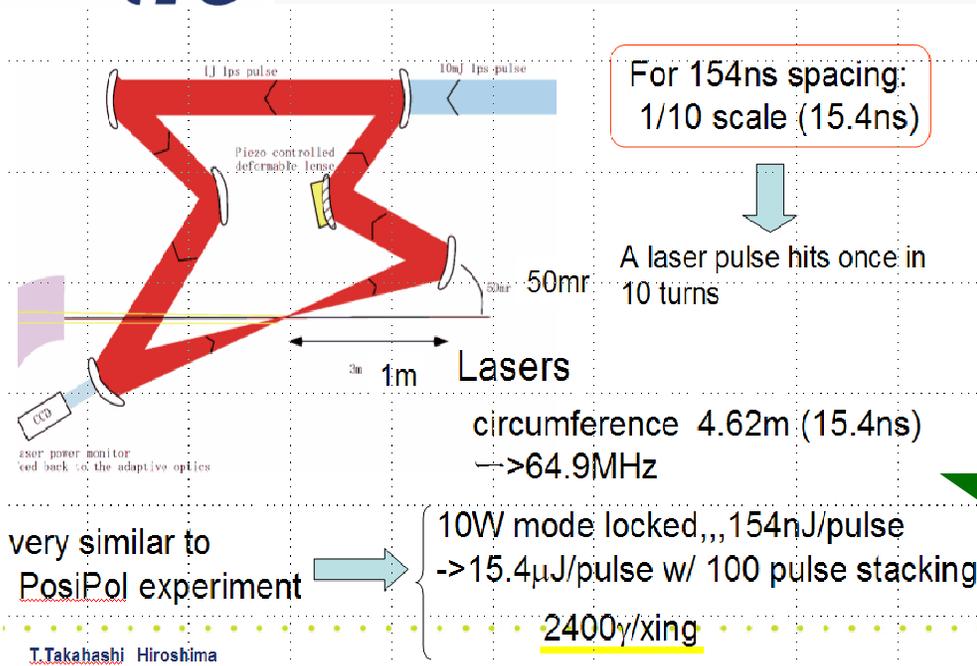
Check how this works with:

- **Overlap with detector solenoid?**
- **Degree of cancelation with real errors?**

With µ about 1.05, how much does this distort a 3 T solenoidal (end) field?

L*=3.5m   QD0(2.2m)
ø20 req'd   SD0
IP
14mrad.
=0.802°   49mm
1m   QDEX1
100mm   ø30 req'd
ø20 req'd
L*=5.5m

Photon Collider test bed and other possibilities at future ATF2

For 154ns spacing:
1/10 scale (15.4ns)

A laser pulse hits once in 10 turns

50mr

1m Lasers

circumference 4.62m (15.4ns)
—>64.9MHz

very similar to PosiPol experiment

10W mode locked,,,154nJ/pulse
->15.4μJ/pulse w/ 100 pulse stacking

2400γ/xing

T.Takahashi Hiroshima

- **ATF2 can be**
  - **place for he PLC test bed**
    - demonstration of high intense photon beam
- **ATF2 beam + intense field**
  - **possibly place to perform another aspect of particle physics**

Smaller for DR or full size for ILC bunch spacing

Wake Wave

Reflected intensity can approach the Schwinger limit. In this range of the electromagnetic field intensity it becomes possible to investigate such the fundamental problems of nowadays physics using already available laser, as e.g. the electron-positron pair creation in vacuum and the photon-photon scattering WITH the ELI and HiPER LASERS PARAMETERS.

Bulanov

$$\omega'' = \frac{1 + v_{ph}/c}{1 - v_{ph}/c}\omega \approx 4\gamma_{ph}^2\omega_0$$

$$I''_{max} \approx \kappa(\gamma_{ph})\,\gamma_{ph}^6\left(\frac{D}{\lambda}\right)^2 I_0$$

$$\kappa(\gamma_{ph}) \sim \gamma_{ph}^{-3}$$