Corrections to the

Christoph Montag's

Comment on 90° lattice

parameter	$\mu = 80^\circ$	$\mu = 90^\circ$
$\hat{\beta} = L \cdot \frac{1+\sin(\mu/2)}{\sin\mu}$	$L \cdot 1.668$	$L \cdot 1.707$
$\check{\beta} = L \cdot \frac{1-\sin(\mu/2)}{\sin\mu}$	$L \cdot 0.363$	$L \cdot 0.293$
$\hat{D} = \frac{L^2}{4\rho} \cdot \frac{1+0.5\sin(\mu/2)}{\sin^2(\mu/2)}$	$\frac{L^2}{4\rho} \cdot 3.198$	$\frac{L^2}{4\rho} \cdot 2.707$
$\check{D} = \frac{L^2}{4\rho} \cdot \frac{1-0.5\sin(\mu/2)}{\sin^2(\mu/2)}$	$\frac{L^2}{4\rho} \cdot 1.642$	$\frac{L^2}{4\rho} \cdot 1.293$
$\cancel{\xi_{\text{nat.}} = -\frac{N}{\pi}\tan(\mu/2)}$	$-\frac{N}{\pi} \cdot 0.839$	$-\frac{N}{\pi} \cdot 1.0$

$$\xi_{\text{sext.},x} = \frac{N}{4\pi}\left[\hat{m}\hat{D}\hat{\beta} + \check{m}\check{D}\check{\beta}\right] \quad (1)$$

$$\xi_{\text{sext.},y} = -\frac{N}{4\pi}\left[\hat{m}\hat{D}\check{\beta} + \check{m}\check{D}\hat{\beta}\right] \quad (2)$$

$$\cancel{\xi_{\text{sext.}} = -\xi_{\text{nat.}}} \quad (3)$$

$$\xi_{x,y\ RHIC} \approx -52 + \xi_{FODO(6x11)} \quad @\beta^* = 1m \qquad \xi_{FODO(6x11)} \sim -20$$

	parameter	$\mu = 80^\circ$	$\mu = 90^\circ$
$\Rightarrow$	$\hat{m} = \frac{\xi_{\text{nat.}}}{\hat{D}(\hat{\beta}+\check{\beta})}$	$\cancel{0.129 \cdot \frac{4\rho}{L^3}}$	$\cancel{0.184 \cdot \frac{4\rho}{L^3}}$
	$\check{m} = \hat{m} \cdot \frac{\hat{D}}{\check{D}}$	$\cancel{0.251 \cdot \frac{4\rho}{L^3}}$	$\cancel{0.387 \cdot \frac{4\rho}{L^3}}$

$\mu = 80^\circ$	$\mu = 90^\circ$
0.254	0.289
0.495	0.605

14% H & 22% V

A 90° lattice requires ~~≈ 50%~~ stronger sextupoles than a 80° lattice.

Phase advance increase is 12.5%

Dynamic aperture??? ?????

11/05/2004 by *Vladimir Litvinenko*

$$\xi_{\text{sext.},x} = \frac{N}{4\pi}\left[\hat{m}\hat{D}\hat{\beta} + \check{m}\check{D}\check{\beta}\right]$$

$$\xi_{\text{sext.},y} = -\frac{N}{4\pi}\left[\hat{m}\hat{D}\check{\beta} + \check{m}\check{D}\hat{\beta}\right]$$

$$\xi_{\text{sext.}} = -\xi_{\text{nat.}}$$

$$\cancel{\hat{m} = \frac{\xi_{\text{nat.}}}{\hat{D}(\hat{\beta}+\check{\beta})}}$$

$$\cancel{\check{m} = \hat{m}\cdot\frac{\hat{D}}{\check{D}}}$$

$$\hat{m} = \frac{\xi_{\text{nat.}}}{\hat{D}(\hat{\beta}-\check{\beta})}$$

$$\check{m} = -\hat{m}\cdot\frac{\hat{D}}{\check{D}}$$