

Comment on 90° lattice

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

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

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

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

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

A 90° lattice requires $\approx 50\%$ stronger sextupoles than a 80° lattice.

Dynamic aperture???