

ILC FFS $\sqrt{s} = 500\text{GeV}$ status

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Linear Optimization

- Matching using: Matching quads + QF5, QD4, QF3, QD2A, QF1, QD0.
- Target: $\beta_x = 0.011\text{m}$ and $\beta_y = 0.00048\text{m}$.
- Initial phase advance: $\Delta\mu_x/2\pi = 3.338041006$,
 $\Delta\mu_y/2\pi = 3.388390859$

$$l^* = 3.51 \text{ m}$$

$$\beta_x = 0.01099976171 \text{ m}$$

$$\beta_y = 0.0004799986132 \text{ m}$$

$$\alpha_x = -0.2009932895$$

$$\alpha_y = 0.3923269404$$

$$D_x = 6.658178479 \cdot 10^{-5} \text{ m}$$

$$D_y = 0.0 \text{ m}$$

$$\Delta\mu_x/2\pi = 3.343409409$$

$$\Delta\mu_y/2\pi = 3.329877429$$

$$l^* = 4.50 \text{ m}$$

$$\beta_x = 0.01100000332 \text{ m}$$

$$\beta_y = 0.0004800000015 \text{ m}$$

$$\alpha_x = 1.204225951 \cdot 10^{-5}$$

$$\alpha_y = -9.349642515 \cdot 10^{-6}$$

$$D_x = 1.273846396 \cdot 10^{-6} \text{ m}$$

$$D_y = 0.0 \text{ m}$$

$$\Delta\mu_x = 3.529357874$$

$$\Delta\mu_y = 3.429198725$$

Nonlinear optimization, $l^* = 3.51$ m

- Optimization using 5 sextupoles: SF6, SF5, SD4, SF1, SD0.
- Momentum spread: $\Delta p/p = 0.00125$.
- MAPCLASS computation.
- $\sigma_x^{10} = 500.79\text{nm}$, $\sigma_y^{10} = 6.46\text{nm}$

