

The  $B_{\text{mag}}$  coefficient represents the mismatch between two optics:

$$B_{\text{mag}} \equiv \frac{1}{2} \left[ \frac{\beta_2}{\beta_1} + \frac{\beta_1}{\beta_2} + \beta_1 \beta_2 \left( \frac{\alpha_2}{\beta_2} - \frac{\alpha_1}{\beta_1} \right)^2 \right].$$

Note that  $B_{\text{mag}} \geq 1$ .  $B_{\text{mag}}$  is conserved through a beam line unless an additional machine error appears. It is a ratio of the average emittance, invariant to the emittance.