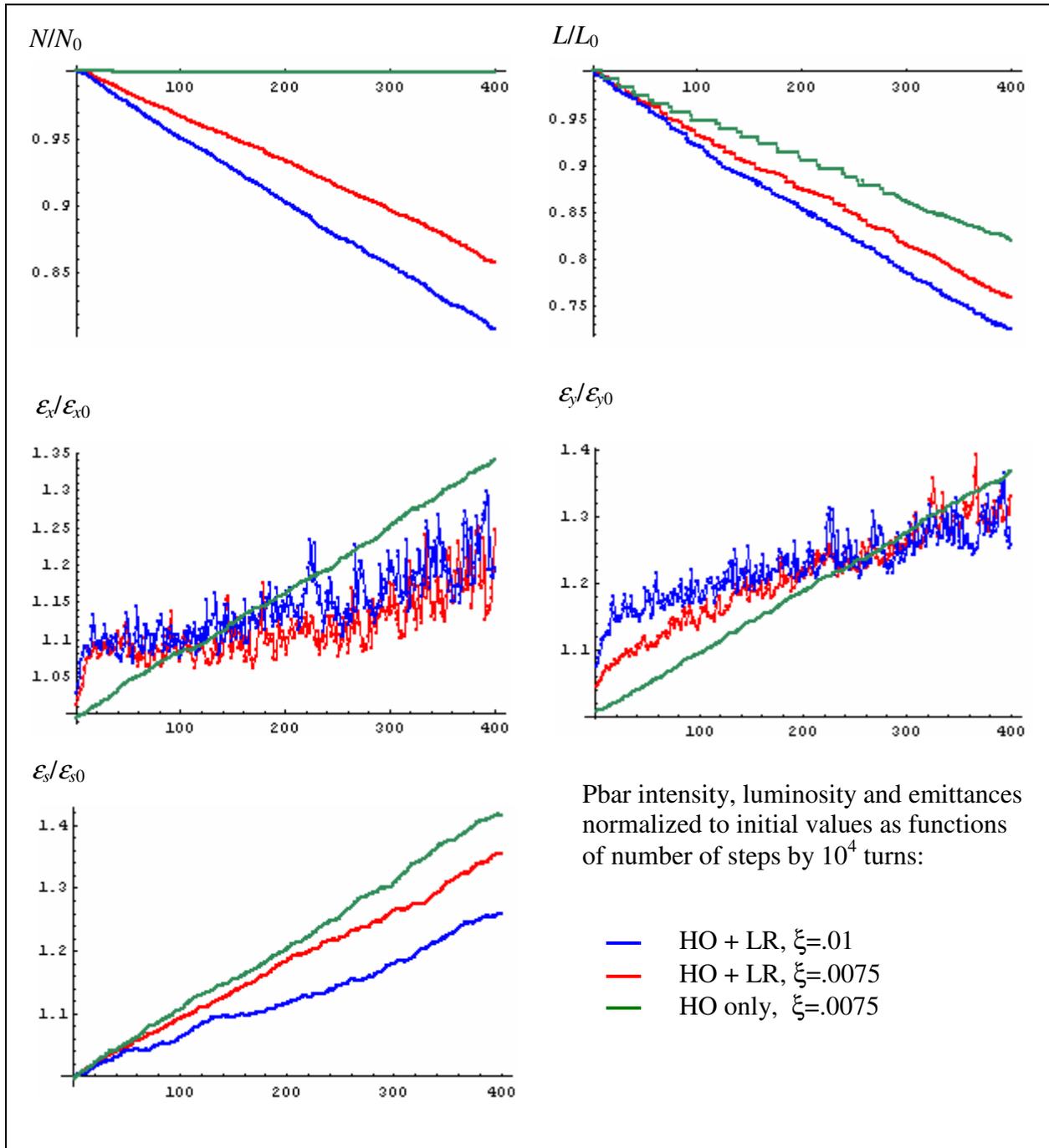


## Effect of the Long-Range Interactions with the Design Optics

Three cases compared:

- 1) Head-on + Long-range (bunch #1 really),  $\xi=.01$ ,  $Q_x=.57$ ,  $Q_y=.56$
- 2) The same as above, but  $\xi=.0075$ ,
- 3) Head-on only,  $\xi=.0075$ ,  $Q_x=.574$ ,  $Q_y=.562$



Conclusions:

1. Head-on collisions do not produce visible effect on the luminosity and emittances, without LR their variation is determined by the noise level (9% in  $10^6$  turns).
2. With LR included the transverse emittances reach equilibrium values which weakly depend on  $\xi$ : the “soft aperture” is determined primarily by the position of the opposing beam, not its intensity.