

Optics Status and Challenges

- Some general remarks on variants and how to prioritize

Upgrade layouts: situation

- The number of candidate layouts exploding!
- Experience with initial LHC operations essential for upgrade direction an optimal design.
- Need to focus and prioritize the candidate layouts to guide the initial LARP work on magnets.

Upgrading 100 m only!

Upgrade Phase I concerns Long Straight Sections only (2x270 m on either side of IP)! The remainder of the insertions remains unchanged (2x 210 m).

Prioritize on basis of existing LHC optics blocks which will not be upgraded:

- Matching to the dispersion suppressor
- Tuning range of the matching sections
- Aperture
- Injection optics!

Correctors!

In analyzing priorities do not forget:

- Matching of the vertical dispersion in quadrupole first variants
- Crossing angle correctors (where, how?)
- Field quality and alignment issues in the two-in-one quadrupoles (cross-talk between apertures?)

Interface with the experiments!

Upgrade for and with the experiments:

- Space for Totem recoverable?
- TAS length and shielding integration
- Position of the first optics element (23 m?)

In summary:

Foresee effort in FY04 to prioritize (together with CERN/AP) candidate layouts on the basis of known performance limitations of the LHC DS and MS.