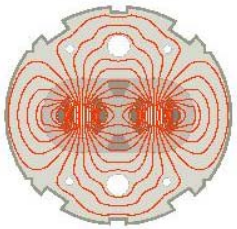
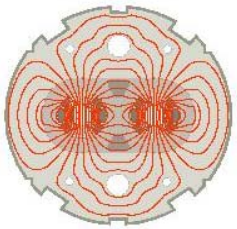


LHC On-line Modeling

On-Line versus Off-Line Model

First Milestone for On-Line Model

(Werner Herr and Frank Schmidt)



On-Line versus Off-Line Model

At the last LOC there might have been a misunderstanding:

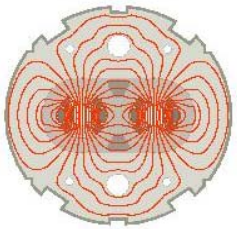
1. *The choice of the particular MAD-X flavor will not mean that the off-line model will be disconnected from the on-line model!*
2. *However,* the off-line and on-line models serve very different purposes, the former must be stable over longer periods while the latter is very dynamic and may change from shot to shot.
3. *Central Task:* How to transfer relevant modifications of the on-line model to the one for the off-line use.

We are aiming at using both version dependent on the task:

1. Let me remind you that "madxp" is identical to "madx" except that *in addition* PTC can be invoked.
2. The classical "madx" will be used for tasks that require fast response times.
3. The PTC version "madxp" will be used whenever a precise model of the LHC is needed. In particular, when magnet settings should be transferred from MAD-X to the control system this may be mandatory.

Advantage of "madxp" and the link to the off-line model:

1. An essential advantage of "madxp" is that the multipole errors can be directly assigned to the thick elements. ➔ *Straight forward "exact" model of LHC*
2. The error routines will be kept untouched, such that the off-line model will stay intact as is.
3. *However,* we will *also* have to allow to assign the errors to the thick elements.



First Milestone for the On-Line Model

- Central for the communication with the control system is *S*elf *D*escribed *D*ata *S*ets (*SDDS*).
- Presently, a two-way SDDS interface is being written for MAD-X.
  - Orbits, knob settings, 1000 turns will be provided by MAD-X in form of SDDS and TFS.
  - These SDDS will be used by the control system, e.g. plotting orbits.
  - Settings from the control systems will be read into MAD-X as SDDS.
  - Besides MAD-X some of our analysis programs (e.g. *SUSSIX*) will be linked to SDDS.
- First Milestone is to be ready with MAD-X to provide data exchange with the control system for the *CNGS* commissioning.