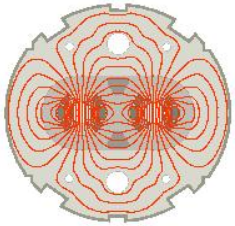
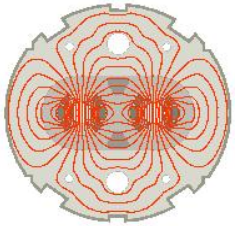


MAD-X for LHC On-line Modeling

- *MAD-X production version 3.03*
- *Upgrade of MAD-X for the On-line Modeling*
- *Getting started with the LHC on-line modeling*

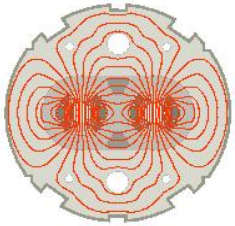


MAD-X Production Version 3.03

- *MAD-X production version 3.03 completed last Thursday*

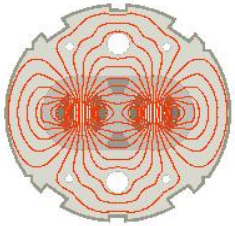
➔ *MAD-X is now frozen like MAD8/9*

- *Long Run-down phase from full code development*
- *Last seven weeks intense collaboration towards 3.03: Valery Kapin, Piotr Skowronski, Alex Koschik, Etienne Forest and myself*
- *Documentation for PTC module ptc_twiss, ptc_track, ptc_normal, ptc_track_line*
- *Full functional test, debugging and examples of these modules*
- *Side effect: some new features in MAD-X*
- *Thin-lens tracking according to Ripken (PTC as well!); 6D closed-orbit still missing*
- *Non-Linear matching works using ptc_normal encapsulated in macros*



Upgrade of MAD-X for LHC On-Line Modeling

- *MAD-X has very relevant limitations concerning error assignment*
  - *Field Errors cannot be assigned to thick elements, but one has to go through makethin first to assign them as kicks*
  - *Same field errors for several slices of a magnet not automatic*
  - *Errors are lost after use command*
- *Therefore, Werner and myself will investigate if madxp (MAD-X + PTC) is more appropriate for On-line Modeling*
  - *Valery and myself have added the possibility to add multipoles (identical to the madx multipole type) to thick elements. These are ignored in madx but transferred to madxp*
  - *Etienne has become directly involved with the requirements of madxp for on-line modeling: A complex thin-lens structure on top of the thick elements has been introduced, this allows to "look" into the magnets without loosing the thick nature of the element (to be tested)*



Getting started with LHC on-line Modeling

- *Werner and myself have started discussions with Jőrg Wenninger how to communicate between MAD-X and the control system*
  - *MAD-X ➔ control system: TFS foreseen already*
  - *Control system ➔ MAD-X: SDDS must be turned into TFS. The impression is that this will not cause major problems. Wenninger will provide an example this week*
- *From the example with the SPS it is clear that the naming confusion magnet/power supply has to avoided for the LHC by all means! I count on the help of Thys for this very tedious work.*
- *It has to be seen how the choice of madxp for the on-line modeling will influence the error assignment and how to match the machine.*
- *Werner will be able to get a first idea on Tuesday what is needed for the CNGS commissioning in terms of on-line modeling.*
- *An effort has been made to find an appropriate fellow or associate for this task. Unfortunately, there were very few candidates in the present folders and those few were already assigned to other projects. We will have to contact other laboratories to attract a specific candidate before the next selection meeting.*
- *In the near future the goals of the on-line modeling will have to be presented to broader audience at Cern.*