

LHC Online Model

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Thanks to R. Tomás

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Online model: short and medium term plans

Regular meetings of the online model group (G. Müller, S. Redaelli, F. Schmidt, M. Giovannozzi, E. Maclean, C. Alabau and some external users of the online model) will take place to work on:

- Optics model
- Online model applications

Optics model

Different optical models can be used:

- Thin model (Madx) with magnetic and alignment errors
- Thick model (Madx) with magnetic errors up to b3, and alignment errors
- Thick model (PTC) with magnetic errors up to higher orders, and alignment errors
- Thick model (PTC) with machine settings from LSA and errors from FiDeL (work in progress)
- Thick model (PTC stand-alone model) (work in progress)

Online Model Applications

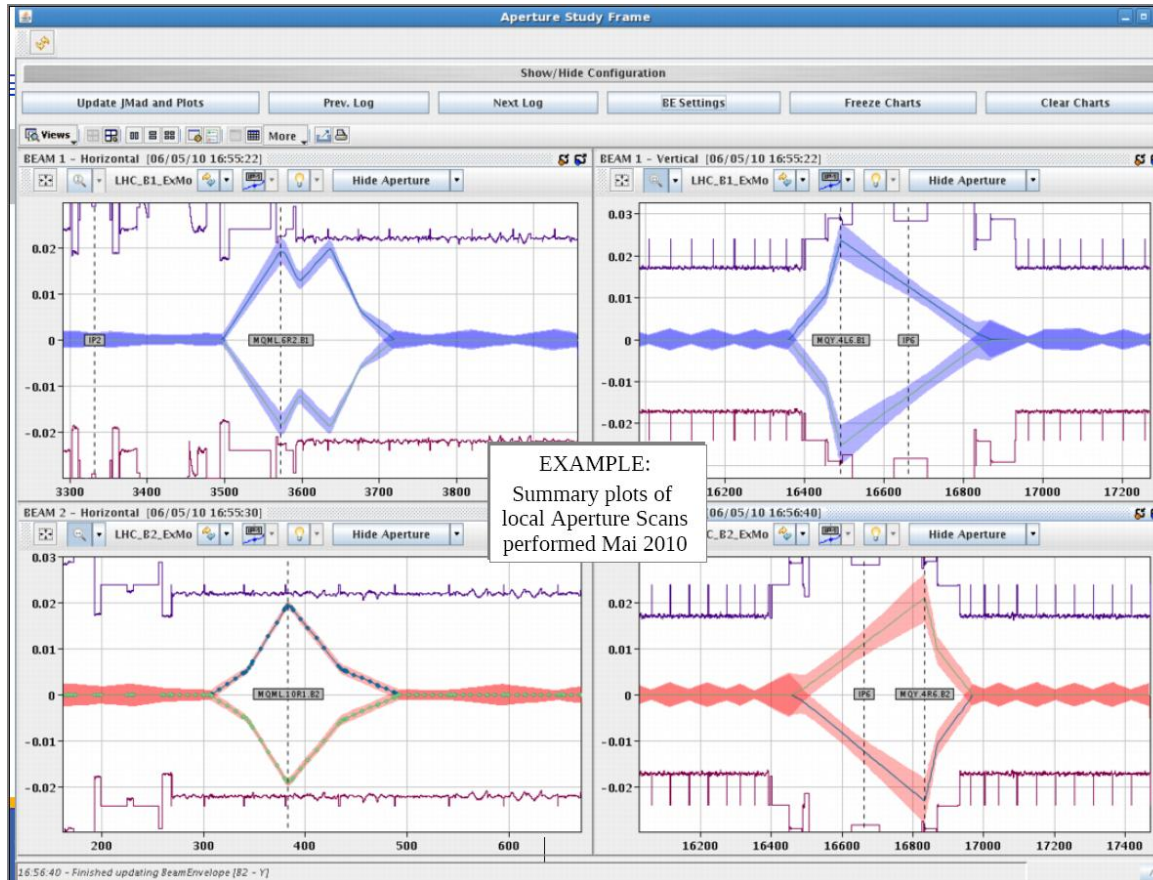
What can the online model do for you?*

execute MadX (Methodical Accelerator Design) scripts in the CCC

- display Optics Information from
 - defined Optics in LSA (LHC Software Architecture) Database
 - output of MadX
 - output of JMad (Java API for MadX)
- display Beam Process Information
- display theoretical Aperture including 1 Hz measured Collimator Jaw Positions
- display Beam Envelope around Orbit Trajectory
- create Knobs from MadX scripts and upload to LSA
- define a Optics Model to use in Jmad
- generate/upload optics to LSA
- retrieve Power Converter settings from LSA (on Strength level)
 - for Optics simulations in MadX / Jmad
 - to display the current settings for verification
- import Orbits from YASP orbit logging files

Online Model Applications

- The online model has been an useful tool for aperture measurements, collimator alignment, etc.



- Displays measured orbit
- Superimposes 3 σ envelope
- Displays aperture

→ Useful tool to check online e.g. if any bump remains in the machine

Online Model Applications

Some applications have been suggested and are going to be implemented:

- fixed display of the minimum n_1 value around the machine (and the name element) (including closed orbit if available)
- fixed display of β -functions and dispersions vs time (when optics changes)
- useful to check the knobs created for the different β^* values

Online Model Applications

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Any other suggestion of applications to be implemented is more than welcome!