

MAUS - Feature #847

Control room - beam envelope tool

22 December 2011 17:13 - Rogers, Chris

Status:	Closed	Start date:	22 December 2011
Priority:	Normal	Due date:	
Assignee:	Rogers, Chris	% Done:	100%
Category:	Online reconstruction	Estimated time:	0.00 hour
Target version:	MAUS-v0.7.4		
Workflow:	New Issue		

Description

We need a simple tool to operate in the control room that will extrapolate beam matrices through the geometry and show calculated linear beam optics output (emittance, twiss parameters, envelopes, energy loss) as a function of z.

History

#1 - 10 January 2012 15:51 - Rogers, Chris

- File *optics_control_room_tool.odp* added

Proposed GUI attached...

#2 - 11 November 2013 10:18 - Rogers, Chris

I made a prototype wrapper for the ROOT gui system that handles layout based on a configuration (json) file. Added half a GUI as part of the set up process.

Probably got 12 good hours working on this during the CM.

#3 - 12 November 2013 17:15 - Rogers, Chris

Another 16 hours or so - have a functional prototype that makes some plots. Have dialogues for selecting beam and for manipulating magnet currents, plus an embedded canvas that holds plots of propagated beam envelope variables. Working on the plotting dialogue, and haven't started any tests or documentation at all...

Still to do then:

- ~~Plotting dialogue (8 hours)~~ 6 hours
- ~~Backend mod - field element aperture (8 hours)~~ 4 hours
- ~~Backend mod - propagate reference particle (for mean energy etc) (8 hours)~~ 4 hours
- ~~Tests of the ROOT GUI wrapper stuff (8 hours)~~ 4 hours
- ~~Tests of the actual logic (8 hours)~~ 8 hours
- ~~Document, pylint and prettification (8 hours)~~ 2 hours
 - (pylint was done with everything else)

So looks like I will overrun the 56 hour estimate for effort required by ~ 30 %. Let's wait and see.

#4 - 18 November 2013 11:35 - Rogers, Chris

Additionally:

- Reasonable geometry set up
- ~~Bug fix - ROOT TGTextEntry is throwin segv if I update it by hand (not if I update it automatically)~~
- ~~Exception handler (5 hours)~~

#5 - 21 November 2013 11:18 - Rogers, Chris

I think that this is reasonably complete now.

The outstanding issue is a reasonable geometry description. I think this is predicated on Ryan finishing what he is up to, so I won't press it now.

#6 - 21 November 2013 14:10 - Rogers, Chris

- Status changed from Open to Closed

- % Done changed from 0 to 100

Merged to trunk as r1014 - another hour spent mucking about with the test server brings the total time spent up to

$12 + 16 + (6 + 4 + 4 + 4 + 8 + 2) + 5 + 1 = 62$ hours

Next steps on this:

- Get a clean geometry description
- Sit with some operations or analysis people in the MLCR and get a new set of requirements

It won't happen any time soon I suspect.

#7 - 21 November 2013 14:14 - Rogers, Chris

- *File maus_user_guide.pdf added*

#8 - 05 February 2014 07:37 - Rajaram, Durga

- *Target version changed from Future MAUS release to MAUS-v0.7.4*

Files

optics_control_room_tool.odp	32.5 KB	10 January 2012	Rogers, Chris
maus_user_guide.pdf	1 MB	21 November 2013	Rogers, Chris