Status of Optics / Operation

&

Project MR/HEBT

With respect to control system issues

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OUTLINE

The perfect control system

Keep dreaming


start

Comissioning

Fun

General Guidelines

- The physics is complicated enough, let's not add other stuff
- The ratio "beam comissioning" to "hard/software comissioning" is bad at other facilities
- A solid procedure framework must speed this up

Steps

- Getting it work the russian way
- Getting it work the proper way
- Clinical comissioning
- Preparing everything for first irradiation
- Paralell patient irradiation and comissioning

Operation

Pushing the button

General guidelines

- Higest uptime with minimal human intervention
- MedAustron is not CERN - there are not 100s of experts around
- ~~To Err is Human. To Really Screw Up, You Need a Computer~~

  $\rightarrow$ 24/7/356 operation
- 25 years of operation
  - Availability of technology
  - Flexibility to changed requirements
  - Maximize Bus-hit factor

A normal day

- Quality assurance at 06:00 $\rightarrow$ automatised routine with reporting
- Irradiations every 7 min - e.g. irradiation room switching procedure
- Operator: "Start button"
- Comissioning in other room(s) / source(s) in paralell

My opinion

Judgement day

Does the CS match the needs?

Continuous good and close contact with WP Controls - I think we are on the right track

- I can't judge technical stuff like FEC..., In the optimal case, this is shielded from me
- Virtual accelerators: I wish everything was simpler, but I guess "Ich wei, das klingt alles sehr kompliziert . . ." [Sinowatz 1983], allocation, beam transfer elements
- Modes
- Cycle generation
- Tracability, data collection, time stamps
- 10 Hz injector pulsing
- Cycle definition: sounds theoretically very powerful. To be

Time scale

From fire fighting to operation

Time scale 1

- Fire fighting:
  - WP driven
  - Finish optics design and beam line element specs, so that more time is available
  - Get B-train rolling
  - Keep fire-fighting
  - Hopefully ends spring next year
- Finish design:
  - Revising the general picture
  - Description of procedures and deriving requirements on procedure framework
  - Investigate Repository software & request changes / new features

Time scale 2

- ITS:
  - Program first procedures
  - ITS
  - prepare comissioning strategy including interfaces
- The real stuff
  - Accelerator Comissioning
  - stepwise adding of functionality (procedures, change guis...)

What I hope for

- Progress on beam delivery control system interface
- Repository management software ready for testing e.g. cycle generation
- Get all systems fully integrated e.g. injector RF, sources,...