

REPORT FROM WG4 (BEAM DYNAMICS)

Coordinated by A. Lombardi (CERN) and R. Baartman (TRIUMF)

- 1) Activity report
- 2) Objective of the meeting

Participants to the WG

- CERN/BE/ABP : end-to-end multiparticle tracking; layout definition/validation; WG coordination.
- CERN/TE/ABT : extraction areas; transfer lines ; collimation
- CERN/AB/RF : HOM calculations.
- ESS-S : end-to-end multiparticle tracking; layout definition/validation
- CEA Saclay :
- Soltan Institute : collimation
- STFC/ Cockroft institute : collimation
- TRIUMF : HOM calculations , WG coordination.

Topics :

- 1) Layout definition/validation, including connection from LINAC4, extraction at 1.4 GeV and 2.5 GeV, transfer lines
- 2) Definition of tolerances (quads alignment and field quality, RF phase and amplitude)
- 3) Definition of correction and monitoring system (steerers, diagnostics)
- 4) HOM effects
- 5) Compatibility with e-
- 6) Impact of cavity performance: lower than nominal field (19MV/m low-beta 25MV/m high beta) , modules switched off....

Priorities!

- 1) Study which have a strong impact on civil engineering :
 - 1) Transition LINAC4-SPL (determine the position of the first cryo)
 - 2) Layout including extraction areas

- 2) Study which have a impact cryo design :
 - 1) Alternative focusing systems
 - 2) Position of corrective elements
 - 3) Position of cold diagnostics
 - 4) Position of the warm diagnostics
 - 5) Alignment studies
 - 6) HOM dampers

- 3) The rest :
 - 1) Collimation Loss control
 - 2) Beam dynamics fine tuning
 - 3) H- stripping in the transfer lines

Achievement this year :

1) baseline layout and alternative layout to be discussed at this meeting

2) Conclusion on HOM / need for damper : HOM workshop in june 09
(<http://indico.cern.ch/conferenceDisplay.py?confId=57247>)

3) study on electron recirculation

(reported at LHeC workshop , sept 09)



Session 1 (with WG2)

Today 16:30

HOM

Scope : revisit workshop conclusions, further simulations recommended at the workshop.

Session 2

Tomorrow 9:00

Doublet vs. FODO

Scope : discuss pros and cons of alternative focusing system, possibly select one.

Session 3 (Partly with WG3)

Tomorrow 10:30

Alignment and correction

Scope : converge on an alignment tolerance, input to further sensitivity studies and correction scheme

Session 4

Tomorrow 16:30

Transfer lines /collimation

Scope : from linac4, to ps2 , beam quality from linac4

Objective of this meeting :

- 1) Discuss and select (or define what is needed to select) a focusing scheme/layout.
- 2) Validate alignment tolerances and correction system.
- 3) Define a path to finalize diagnostics requirement.
- 4) Solidify the collaboration with external institutes.
- 5) Define dates and topics of the next-year workshop(s)
 - Collimation .