

Beam Dynamics Goals of this Workshop

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Goals

- Reliably predict luminosity performance
 - Ensure that predicted luminosity is acceptable
 - Reliably predict background conditions
 - Ensure that predicted levels are acceptable
- ⇒ Need to develop codes and benchmark them
- ⇒ Need to develop tuning strategies with acceptable performance and define tolerances on imperfections

Beam Dynamics Studies

- Need to define alignment, feedback and tuning strategy and ensure that the luminosity target can be met
- Discussion of
 - bunch compressor
 - main linac
 - beam delivery system
 - beam-beam effects
 - post collision line
 - integrated simulations

Code Development

- A number of different codes exist for
 - optics design
 - emittance preservation studies
 - beam-beam effects
 - collimation system studies
- We need to continue the development of these codes
- Very important is the verification of their results
 - ⇒ benchmarking code-to-code or with experiments (three talks)

Diagnostics Requirements

- Combined session instrumentation and beam dynamics
- Need to specify the diagnostics, including specifications and integration into the machine
- Derive a list of diagnostics items and their location
e.g. specify the position of laser wires
- List will be basis to converge to a common diagnostics model
- Make a model for the diagnostics that allows
 - definition of specifications by beam dynamics experts
 - evaluation of feasibility by diagnostics experts

Simulation Standards

- Need to agree on
 - common format for beam description
 - common format for lattice description
 - common format for hardware description
 - common format for detector studies
 - location of repositories
- Hope to arrive at tentative solutions to be decided at Snowmass

List of Sessions I

- Tuesday 10:30 Combined session with Final Focus Optics and Extraction Line
 - Extraction line design and instrumentation
 - Tracking code comparisons
 - Integrated simulations
- Tuesday 17:00 Joint session instrumentation and beam dynamics
 - Identify diagnostics tolerance
- Wednesday 8:30
 - Bunch compressor studies
 - Integrated simulations

List of Sessions II

- Wednesday 10:30 Discussion on the organisation of work
 - Presentation of studies in different regions
 - Discussion of collaboration
- Wednesday 17:00
 - Discussion of interface and simulation standards
- Other session, e.g. beam-beam, halo and collimation system studies in Background session Tuesday afternoon

Conclusion

- Lots of talks but emphasis should be on discussions
- Should try to come to some conclusions
- Will try to assign tasks to people