RTML & Beam Dynamics

Summary of part of Joint session with Main Linac + TDR RTML writing status

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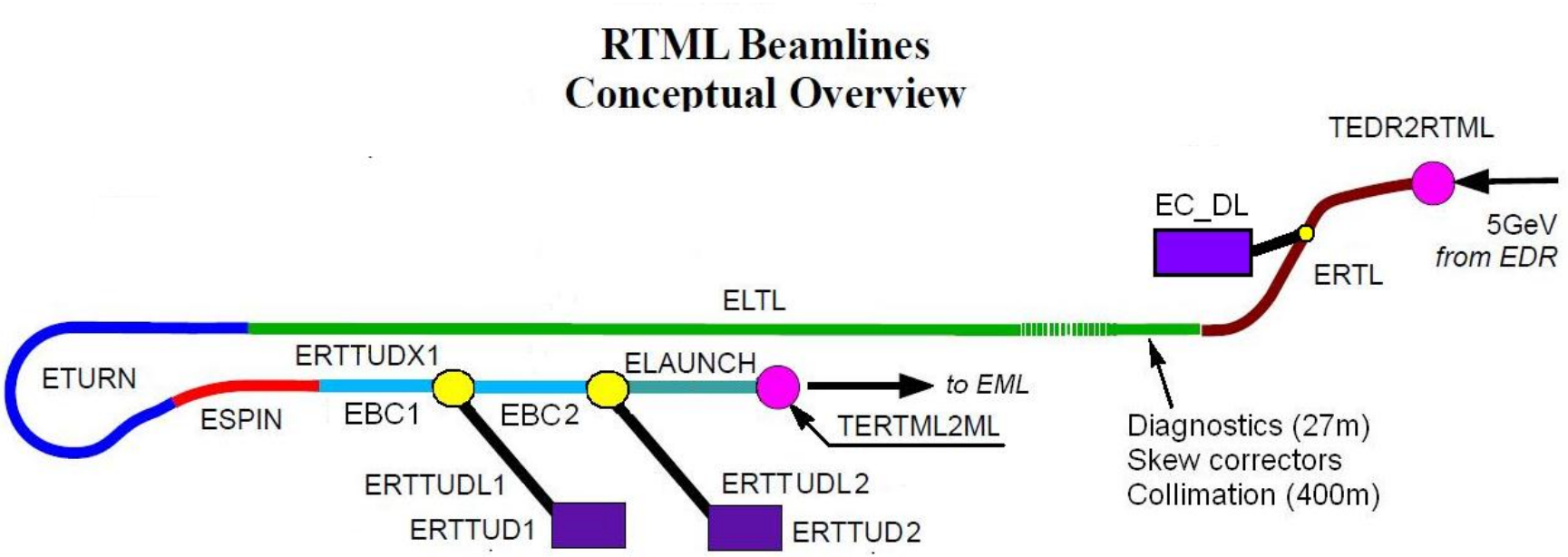
RTML & Beam Dynamics

- RTML design (A.Vivoli, N.Solyak, V.Kapin, Fermilab)
- Main Linac lattice design (V.Kapin, N.Solyak, Fermilab)
  - (Almost) Complete.
  - **No Problem**
- Comments to Main Linac Design from Beam Dynamics (K.Kubo KEK)
  - Confirm present lattice choice is the best.
  - Remind requirements from beam dynamics.
  - **No Objection**
- Status of RTML writing for TDR (prepared by N.Solyak but could not be presented)
  - **No Problem**

Back up slides are following



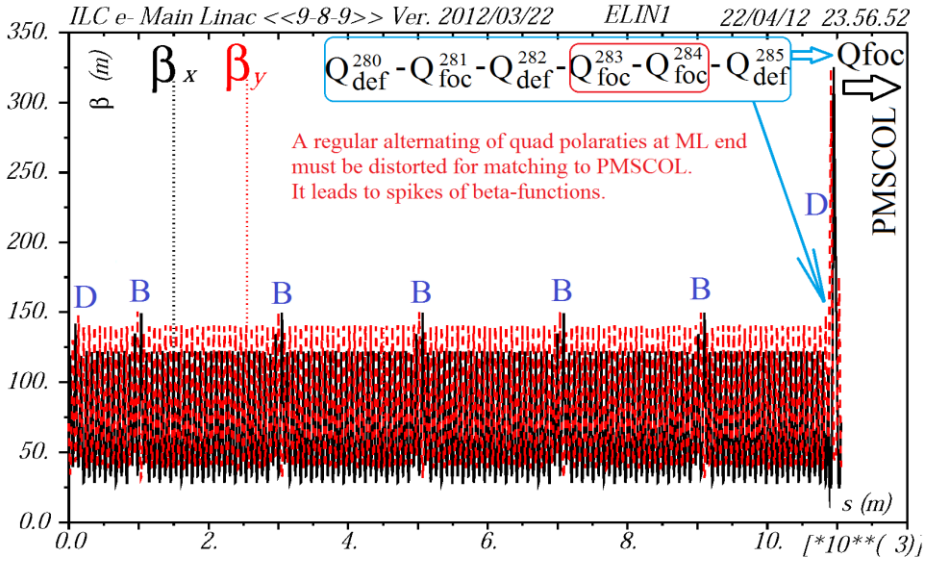
Summary and outlook

- Central region, return lines and Bunch Compressor have been designed according to specifications.
- Earth curvature in return lines have been designed.
- Geometrical matching of DR/ML Treaty points have been performed, optics matching almost done.
- Simulations of BC have been performed with good results.
- Magnet count and Heat Load/Cost estimations almost completed.

Main Linac
Summary & the present lattice status

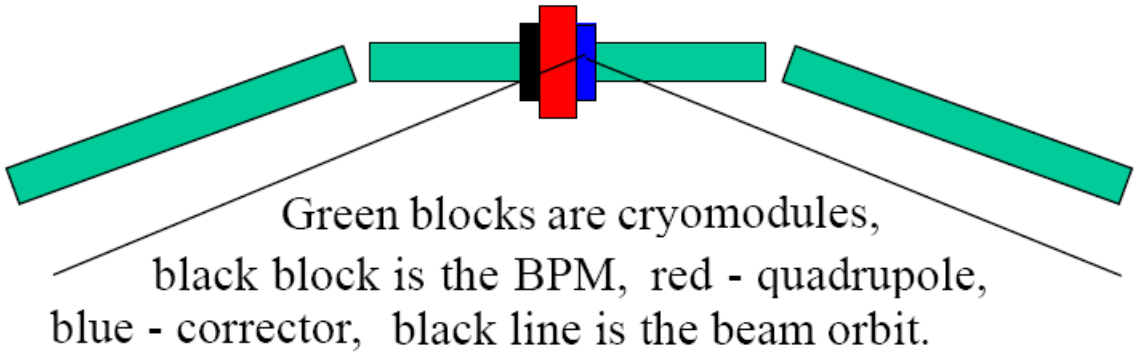
- Main Linac lattices (9+4Q4+9 configuration) for TDR version have been re-designed, tuned and matched
- Tuning and matching subroutines previously created for RDR in 2007 are checked and adaptively modified for TDR-2012 version
- Presented outlook of lattice tuning is a helpful reference in a future, since the CM length can be slightly changed in the final designs
- ML lattices are ready for a further non-optical “text-information” polishing (like MAD8 “TYPE” statements)
- ML lattices are documented and will be posted at ILC EDMS.

Matched β– functions in ELIN



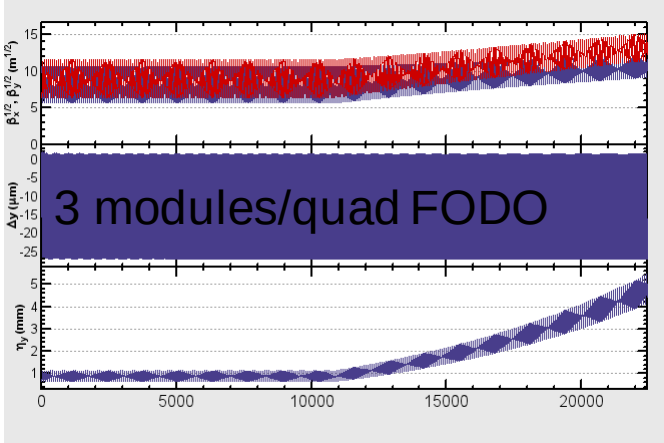
Steering to the Earth's curvature

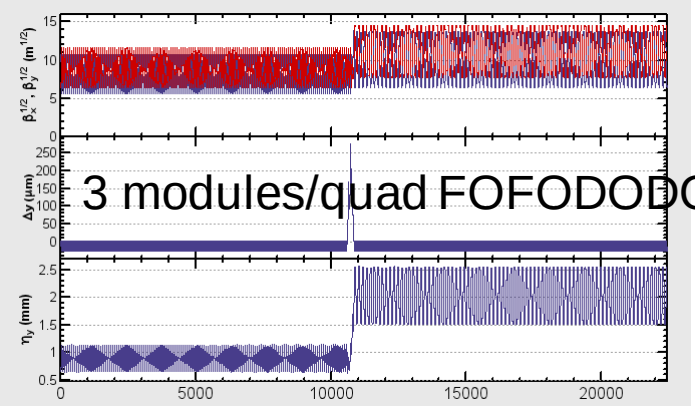
The beam trajectory is steered through the centers of quads, i.e. only at every third CM.



Summary of report by K.Kubo

- Lattice design
  - 3 modules/quad is the best choice
  - Keep most part (from 25GeV) of old linac for 1 TeV upgrade (with FFDD lattice)
- Tolerances, specifications are shown
  - Orbit jitter sources
    - Need post linac intra-pulse feedback
  - Alignment
  - Speed of magnet strength change
  - Movement of quad filed center
  - Field quality of magnet





writing for TDR

- Status Report of RTML section prepared by N.Solyak (could not be presented)

NO PROBLEM, (probably)