Beam Dynamics, EUROTeV and Alignment Teams

D. Schulte
Beam Dynamics Tasks

• Lattice design and modelling
  – Drive beam injector, accelerator, delay loop, combiner ring, turn-arounds, bunch compressor, decelerator
  – Main beam injector, damping ring, booster linac bunch compressor, turn-around, main linac, collimation system, final focus system, post collision line
  – CTF3 modelling
• Definition of alignment, feedback and tuning procedures
• Performance predictions
  – Emittance preservation, luminosity, input to background studies
• Instrumentation requirements
• Conceptual machine protection system
• Code development
Beam Dynamics Team

- Eric Adli
  - Will write his thesis on TBL
- Hans Braun
  - TL2
- Warner Bruns
  - Develops a new modular electron cloud code
- Helmut Burkhardt
  - Halo and tail generation (task reporter)
- Roberto Corsini
  - Defining needs for CTF3
• Peder Eliasson:
  – Luminosity/emittance optimisation with tuning bumps
  – Identification of tuning signals
  – Optimisation algorithm
  – Beam-based alignment
  – Feedback

• Maxim Korostelev
  – Alignment and tuning of the beam delivery system

• Andrea Latina
  – Improved feedback systems
  – Beam-based main linac alignment using the bunch compressor
  – PLACET support including parallelisation

• Lionel Neukermans
  – Halo and tail generation
• Louis Rinolfi
  – Main beam injector/drive beam injector
• Javier Resta Lopez:
  – Non-linear collimation system
• Giovanni Rumolo:
  – Collimator wakefields
  – TBL
• Daniel Schulte
  – Main beam dynamics
  – Drive beam dynamics
• Piotr Skowronski
  – CTF3 modelling, MAD-X development
• Frank Tecker
  – CTF3 modelling
• Rogelio Tomas Garcia:
  – Beam delivery system
  – Optimisation of the system
  – Alignment and tuning of the beam delivery system
  – Beamline design for CTF3
• Peter Urschütz
  – CTF3 injector simulations
• Frank Zimmermann:
  – Non-linear collimation system
  – ATF2
  – Electron cloud
  – Polarised positron source
• Lots of contacts...
  - E.g. Ted Wilson
EUROTeV Team

• Provide important diagnostics for CLIC
  – Wide band current monitor (WBCM)
  – High precision beam position monitor (PBPM)
  – Timing reference for phase stability (TPMON)
• Essentially all the above plus
• Alex Anderson
  – Timing reference with fs precision
• Gilbert Guignard
  – Administration
• Stephen Livesley
  – Timing reference with fs precision
• Salvatore Longo
  – High precision BPM
  – Wide band current monitor
• Ivan Podadera
  – High precision BPM
  – Wide band current monitor
• Francesco Ruggiero
  – Electron cloud
• Jonathan Sladen
  – Timing reference with fs precision
• Lars Soby
  – High precision BPM
  – Wide band current monitor
• Sebastian Thoulet
  – High precision BPM
  – Wide band current monitor
Alignment Team

- Alignment is in charge of TS SU
  - Helene Mainaud Durand
  - Vital for emittance preservation and luminosity achievement in CLIC
Some Collaborations

- Combiner rings
  - Frascati
- Main beam bunch compressor
  - PSI (EUROTeV)
- BDS improvement
  - Valencia, Saclay
- Post collision line
  - Uppsala (EUROTeV)
- EUROTeV
  - Model, algorithm and code benchmarking
- Stabilisation
  - LAPP (EUROTeV)