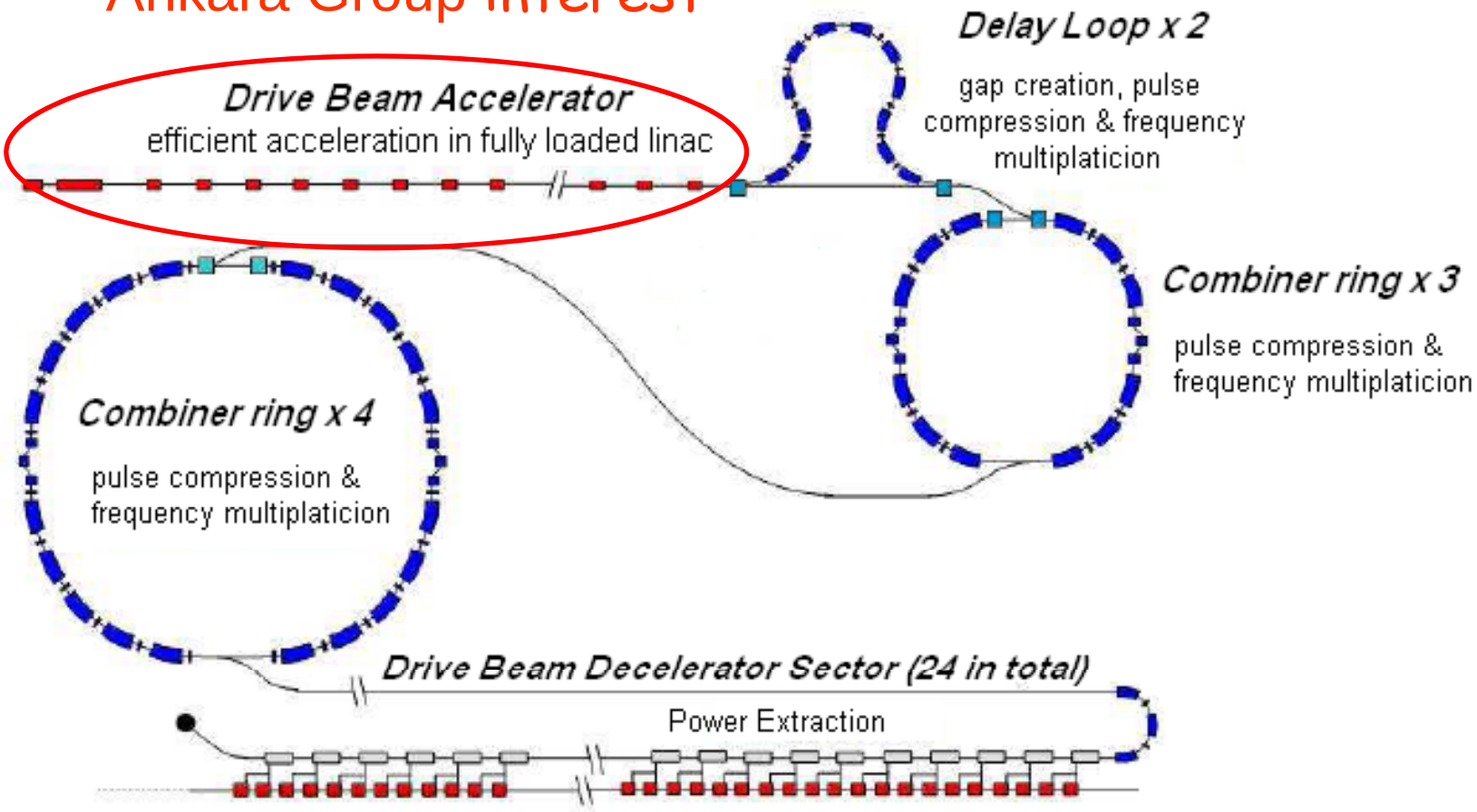
CLIC Drive Beam Accelerator Beam Optics

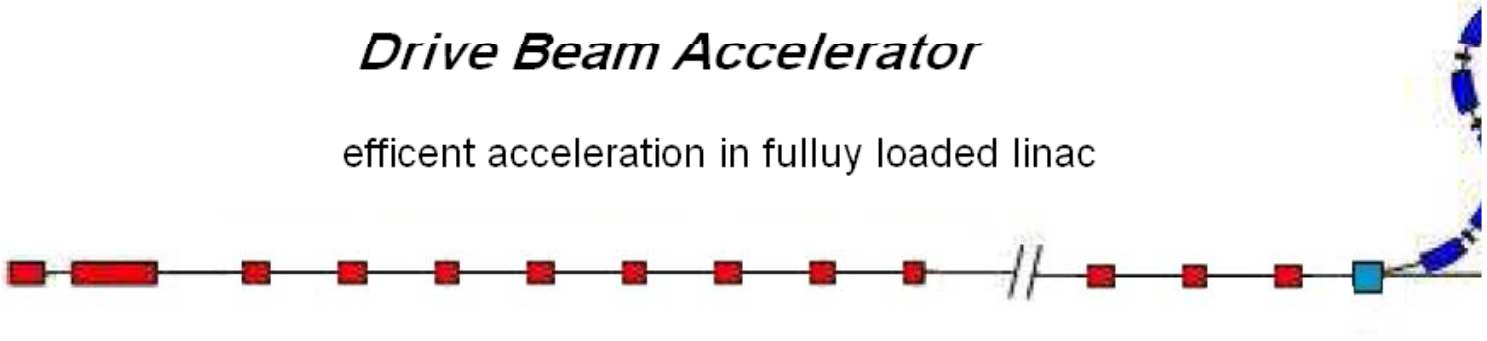
Ankara Group

CLIC Power Generation

Ankara Group interest



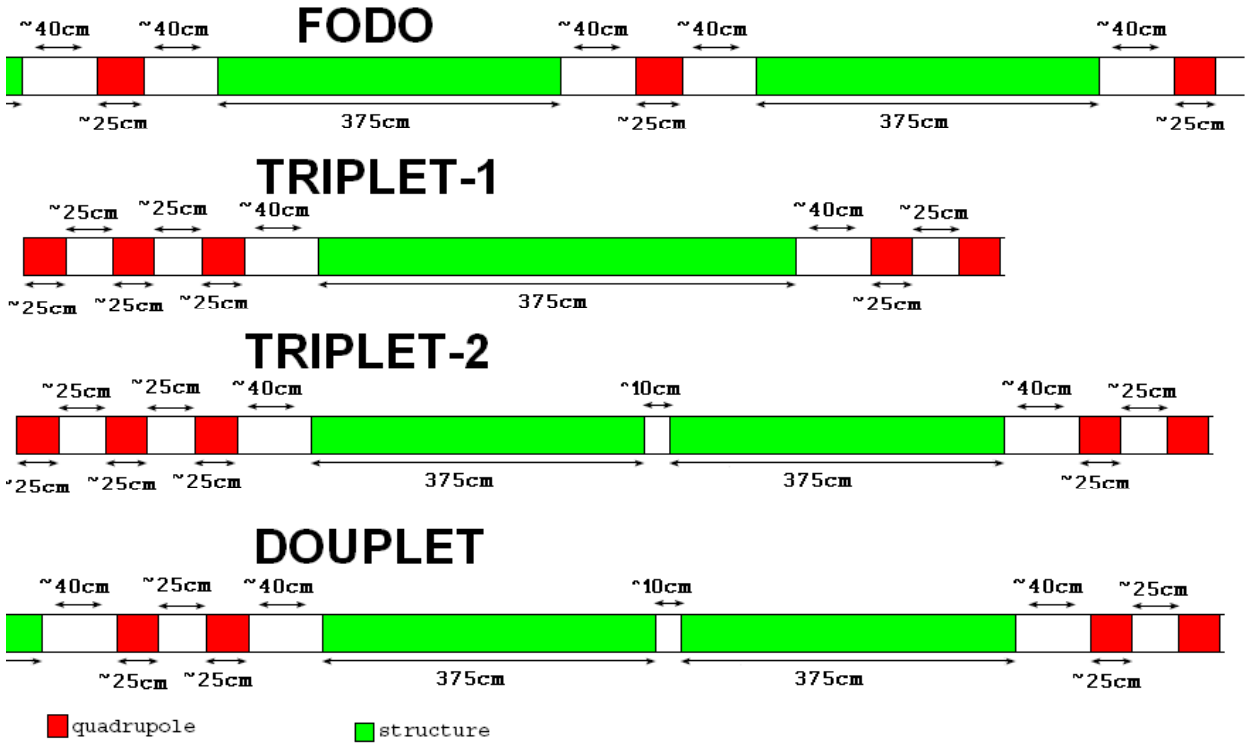
CLIC Drive Beam Accelerator Section



- NC low-frequency (999.5 MHz) travelling wave linac.
- 326 accelerating structures, each of 33 regular cells and approximately 3.75 m length.
- The energy for the RF production is initially stored in a 140 s long electron beam pulse which is accelerated to about 2.4 GeV
- With an input power of 33 MW, such a structure would be fully (99.96%) beam loaded with the nominal 4.21 A beam current.
- The full beam loading would bring the unloaded acceleration of 14.75 MV in a 3.3 m long structure to a loaded moderate 7.63 MV.

Starting point

- First basic lattice desing will be done
  - FODO, Doublet, Triplet



Lattice performances will be simulated (including other beamline elements, dipols, pickups..)

- Emittance Growth
- Dispersion
- Energy Acceptance
- Jitter Amplification
- Bunch-to-Bunch Jitter
- Beam-Based Alignment
- Quadrupole Strength Aberrations
- Comparison of results for TDS and SICA structures

Time Schedule

- about %80 of calculations will be done before 2009 summer
- Results will be improved at CERN in 2009 summer with long term staying here.
- Summer results will be discussed in CLIC09
- Final results will be presented in 2009 summer.