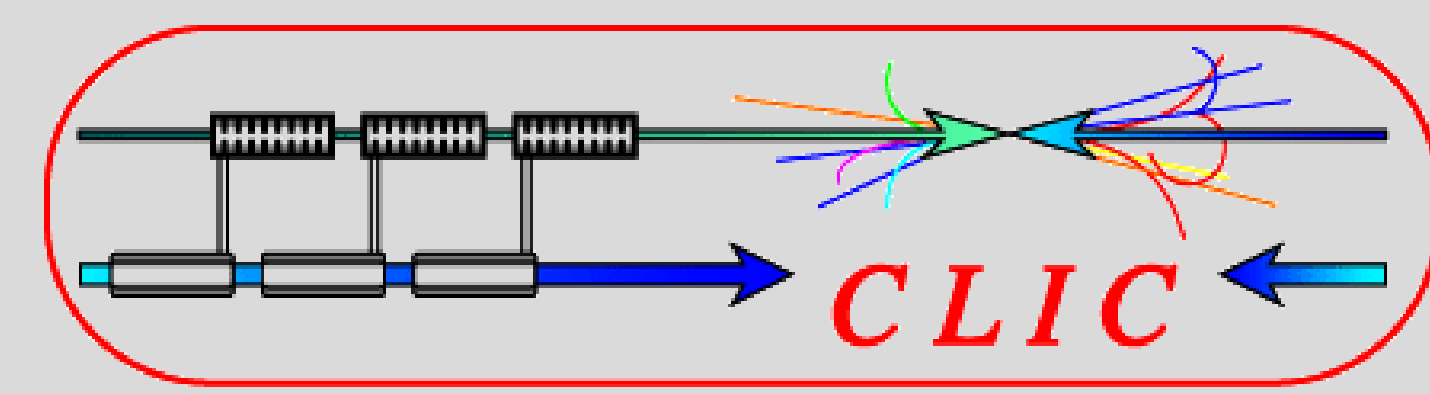
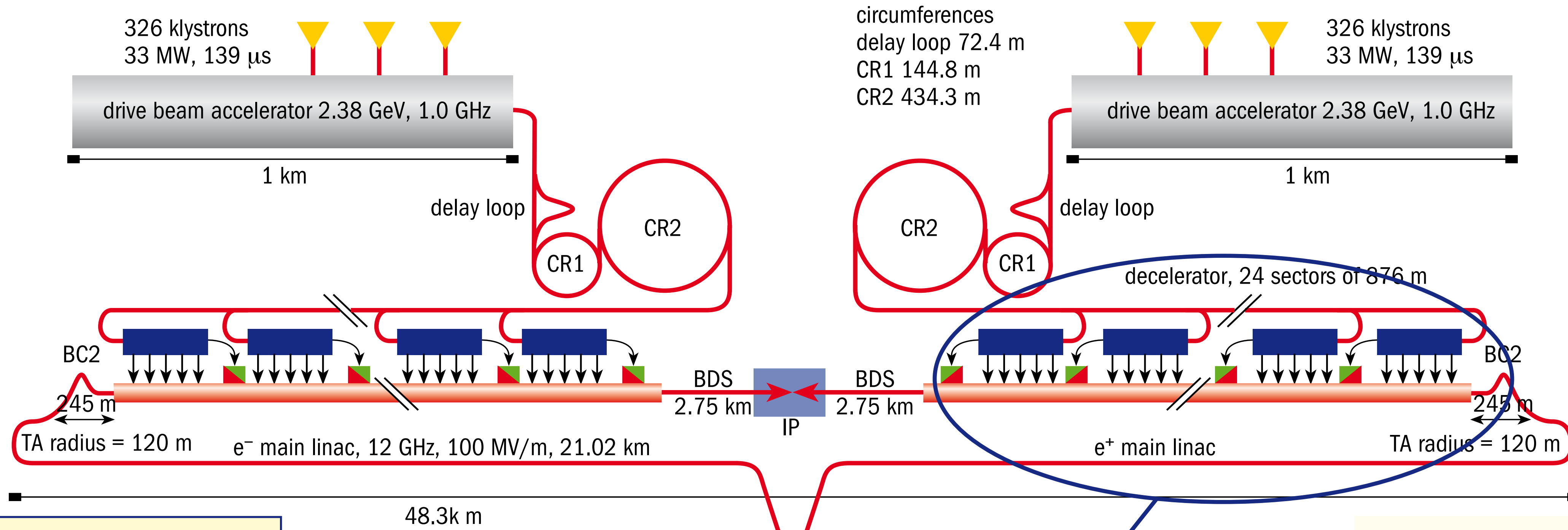


CLIC Development at the CTF3 Two-beam Test Stand

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Uppsala University, Sweden



Roger Ruber, 8 February 2010 *)



CR combiner ring
TA turn-around
DR damping ring
PDR predamping ring
BC bunch compressor
BDS beam delivery system
IP interaction point

CLIC: COMPACT LINEAR COLLIDER

Key features

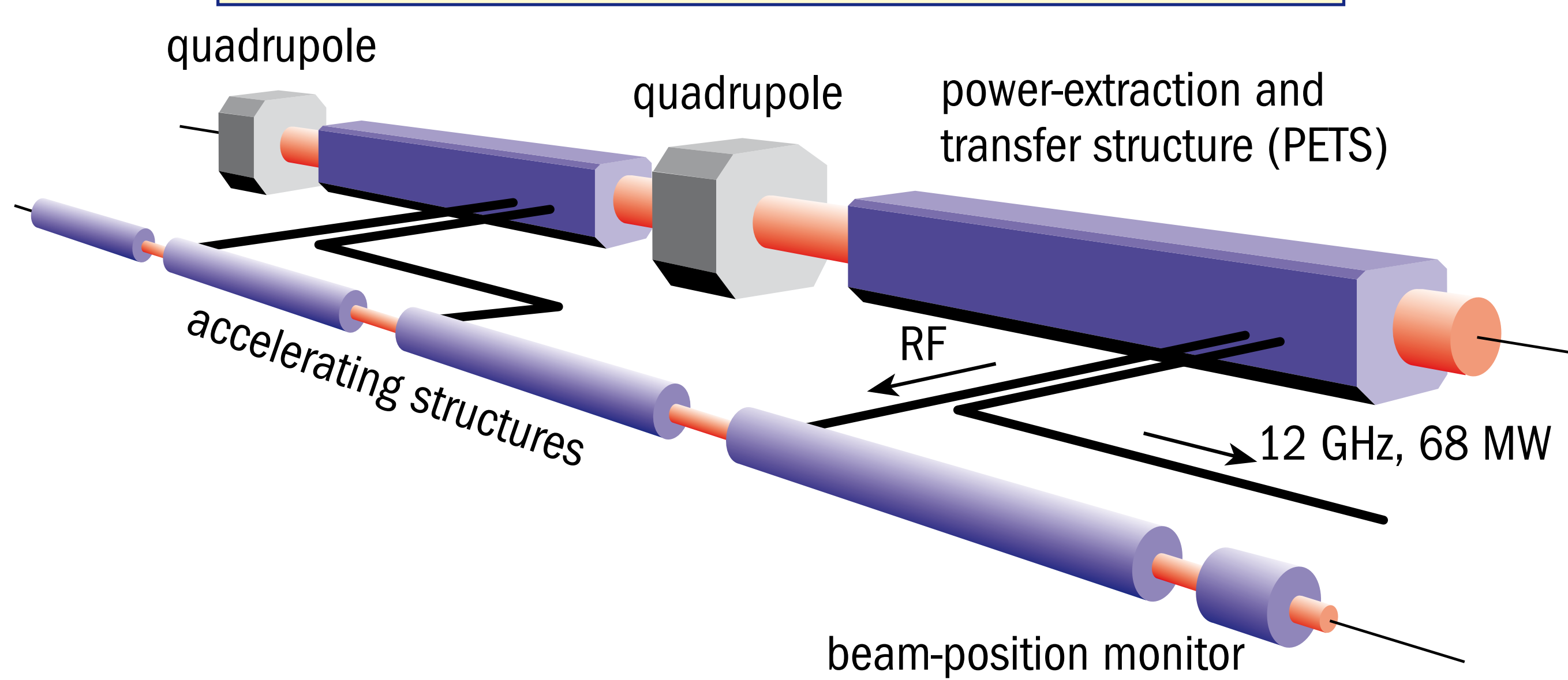
- high peak luminosity
- high centre-of-mass collision energy
- two-beam acceleration
- high gradient acceleration
- efficient power production

MAIN PARAMETERS

	CLIC	CTF3
C.M. Energy	3.0 TeV	
Peak Luminosity	$2 \times 10^{34} \text{cm}^{-2}\text{s}^{-1}$	
<i>Main/Probe beam linac</i>		
Energy	1.5 TeV	150 MeV
Bunch frequency	12 GHz	
Repetition rate	100 Hz	0.8 - 5 Hz
Pulse length	156 ns	140 ns
Beam intensity	1 A	0.5 A
Beam size	40x1 nm	0.7 mm
<i>Drive beam</i>		
Energy	2.38 GeV	150 MeV
Bunch frequency	1.0 GHz	1.5 GHz
Repetition rate	100 Hz	0.8 - 5 Hz
Beam intensity	100 A	30 A

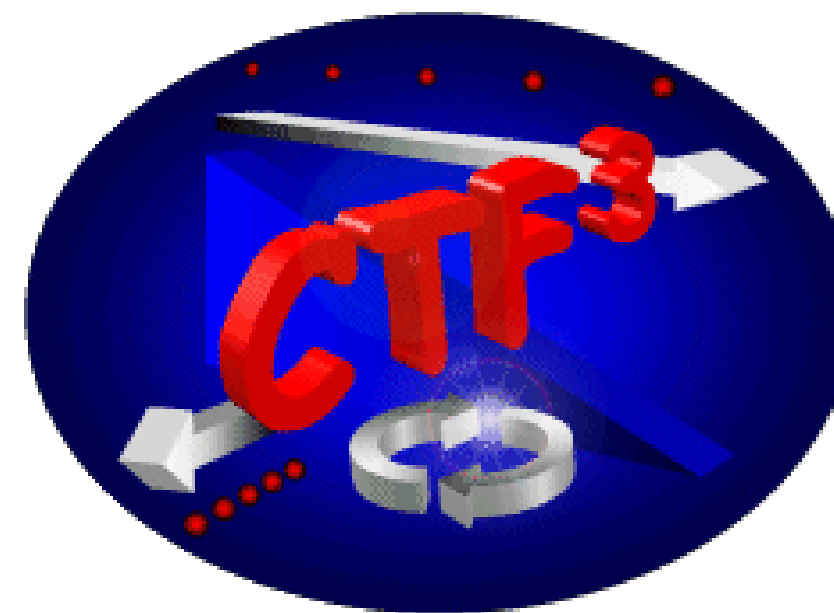
TWO-BEAM ACCELERATION

Drive Beam (100 A, 239 ns) 2.38 GeV -> 240 MeV
Main Beam (1.2 A, 156 ns) 9 GeV -> 1.5 TeV



CTF3: THE CLIC TEST FACILITY

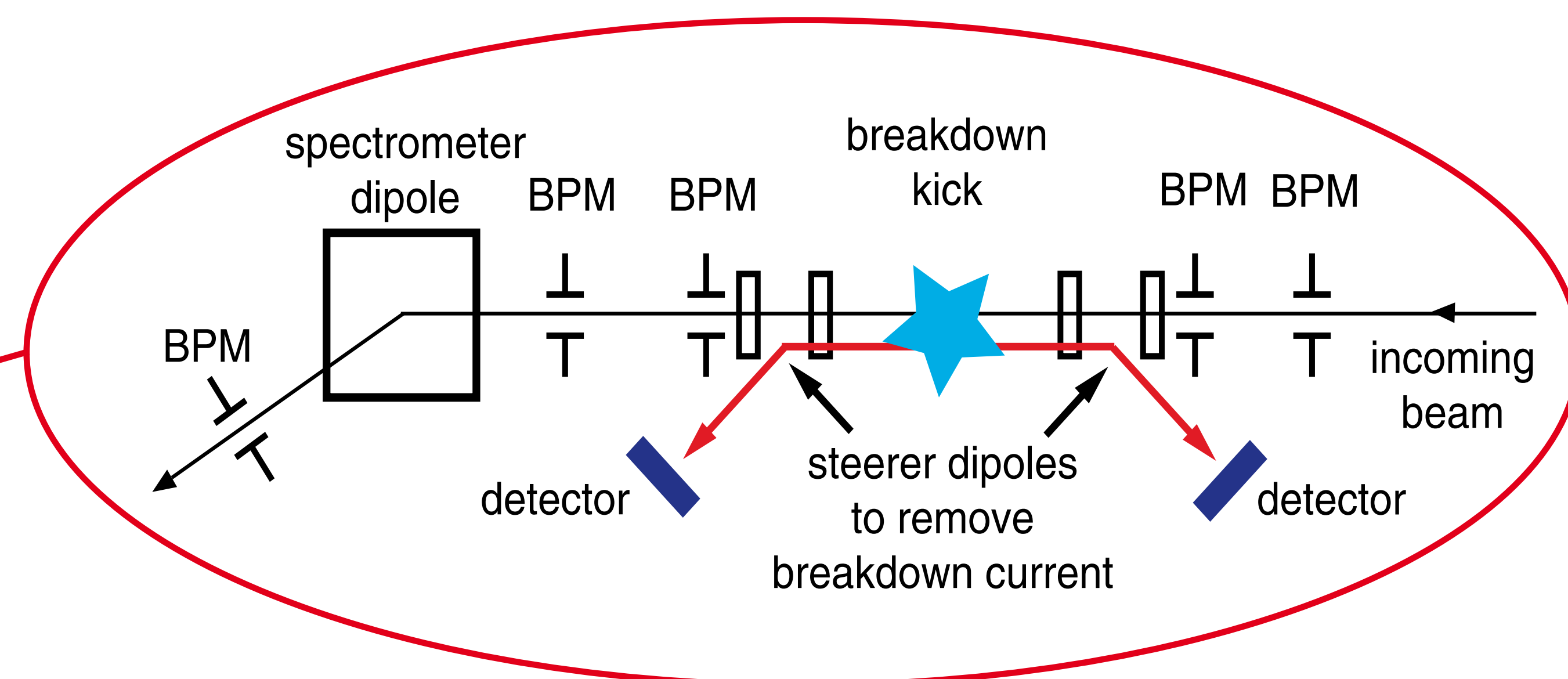
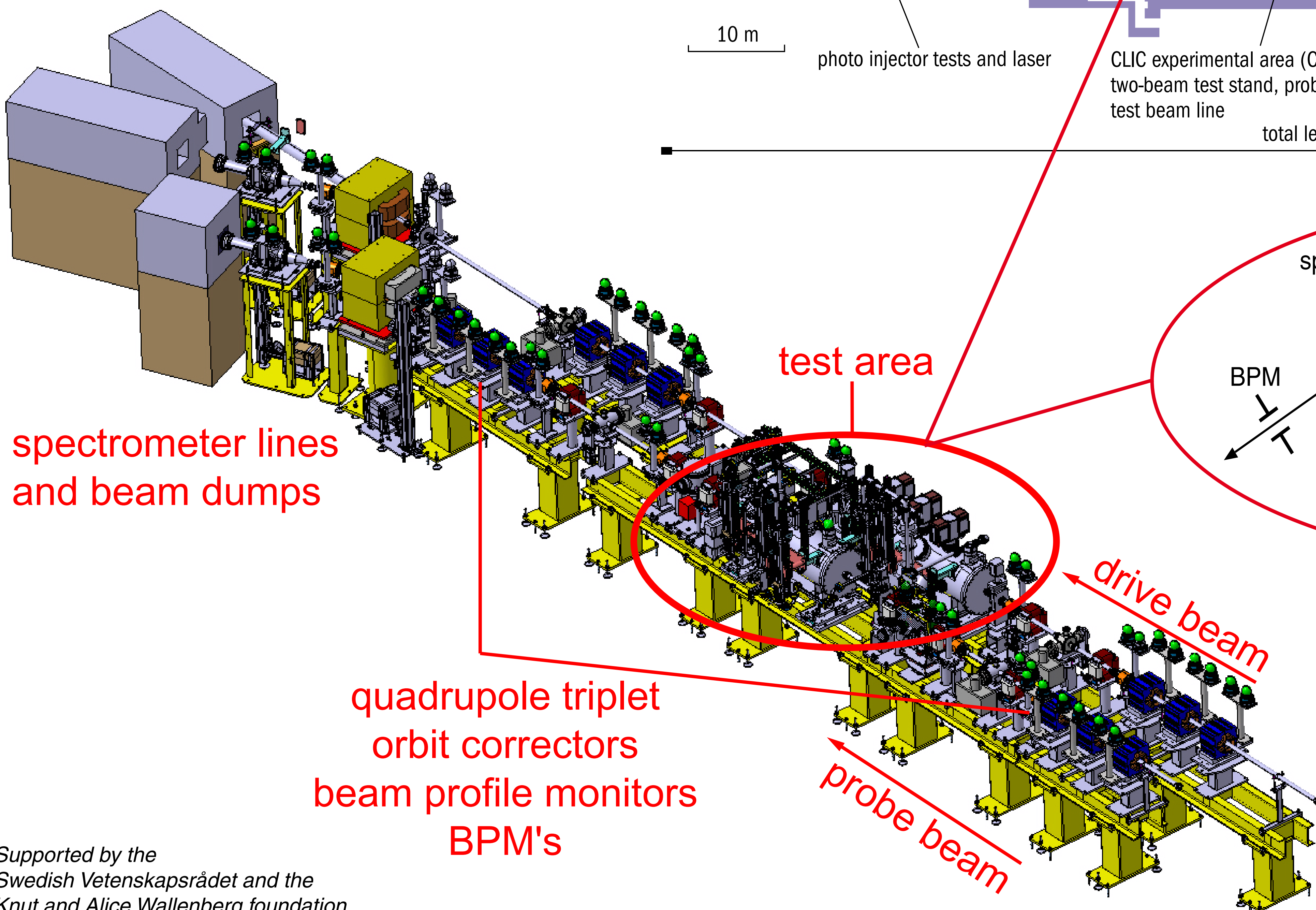
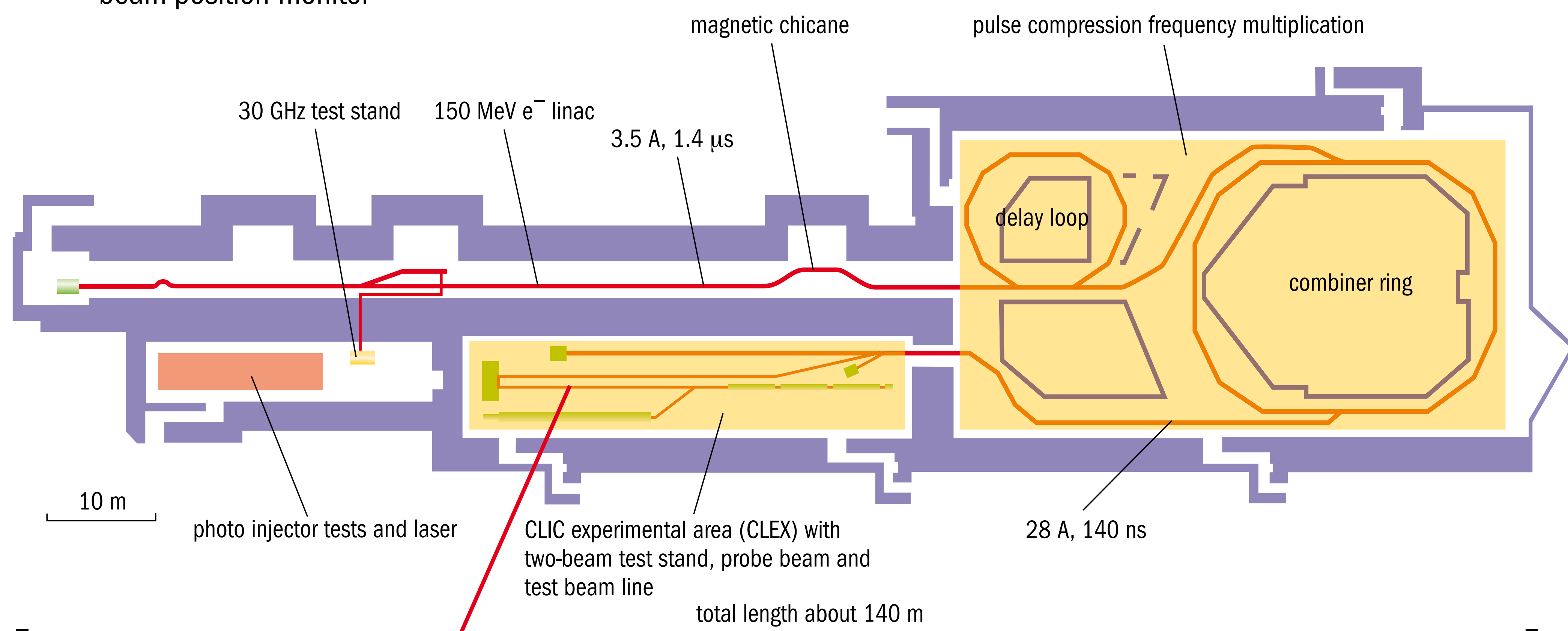
- Demonstrate
- fully loaded acceleration
 - drive beam generation scheme
 - two-beam acceleration
 - high gradient acceleration



THE TWO-BEAM TEST-STAND

Demonstrate two-beam acceleration

- test RF components
- power production in PETS
- high gradient acceleration with low RF breakdown rate



TBTS EXPERIMENTAL PROGRAM

Concentrating on

- power production in PETS
- high gradient acceleration
- beam dynamics effects & stability
- beam kick due to RF breakdown or dipole modes
- physics of RF breakdown