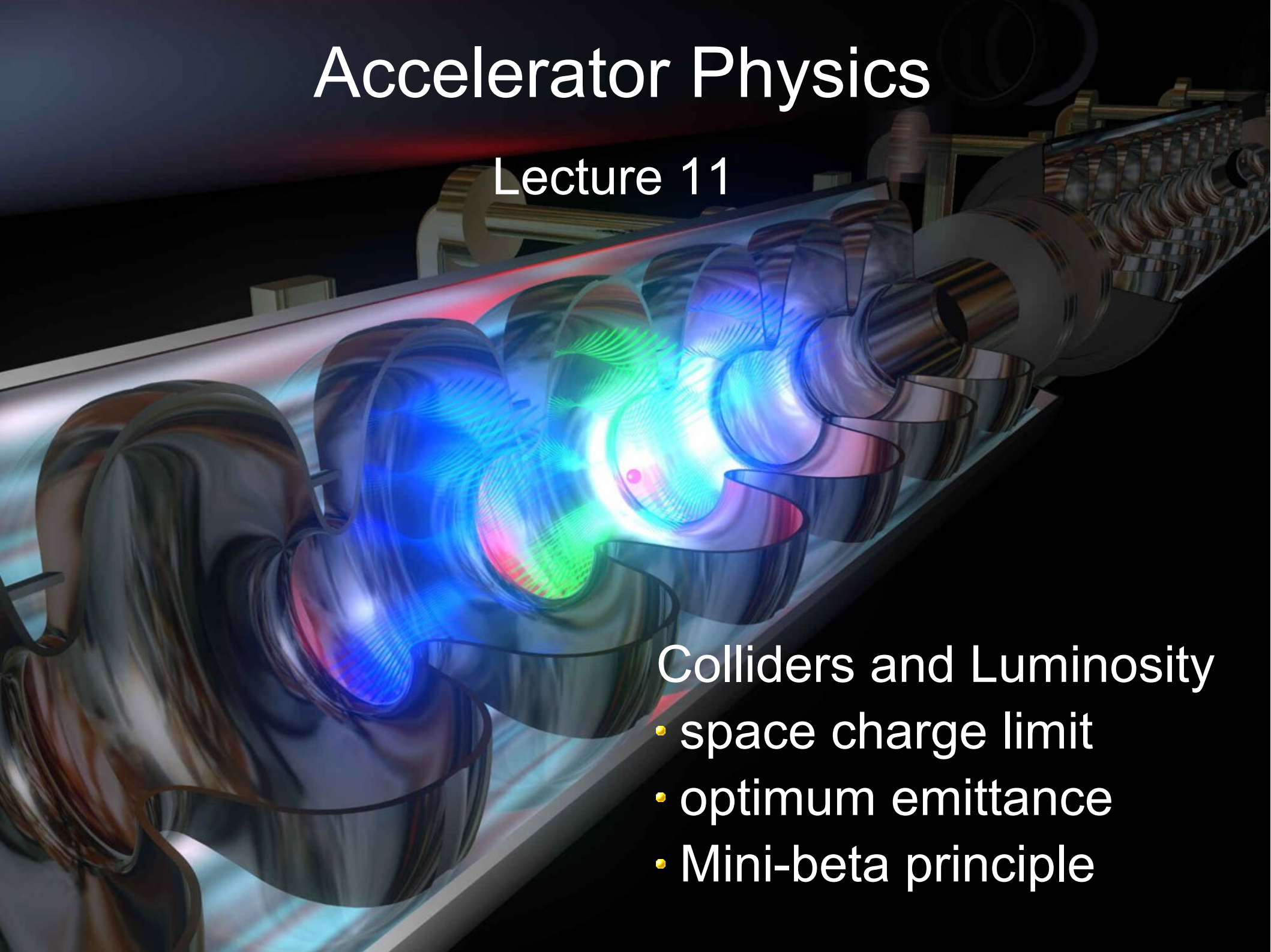


Accelerator Physics

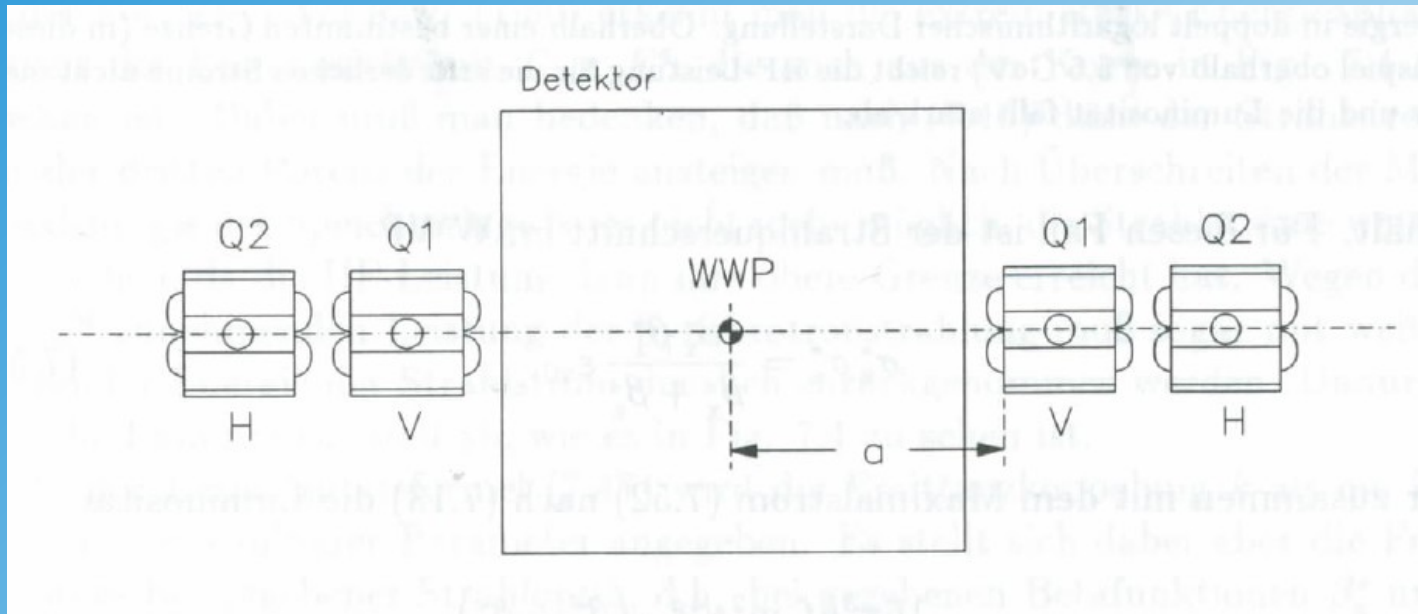
Lecture 11



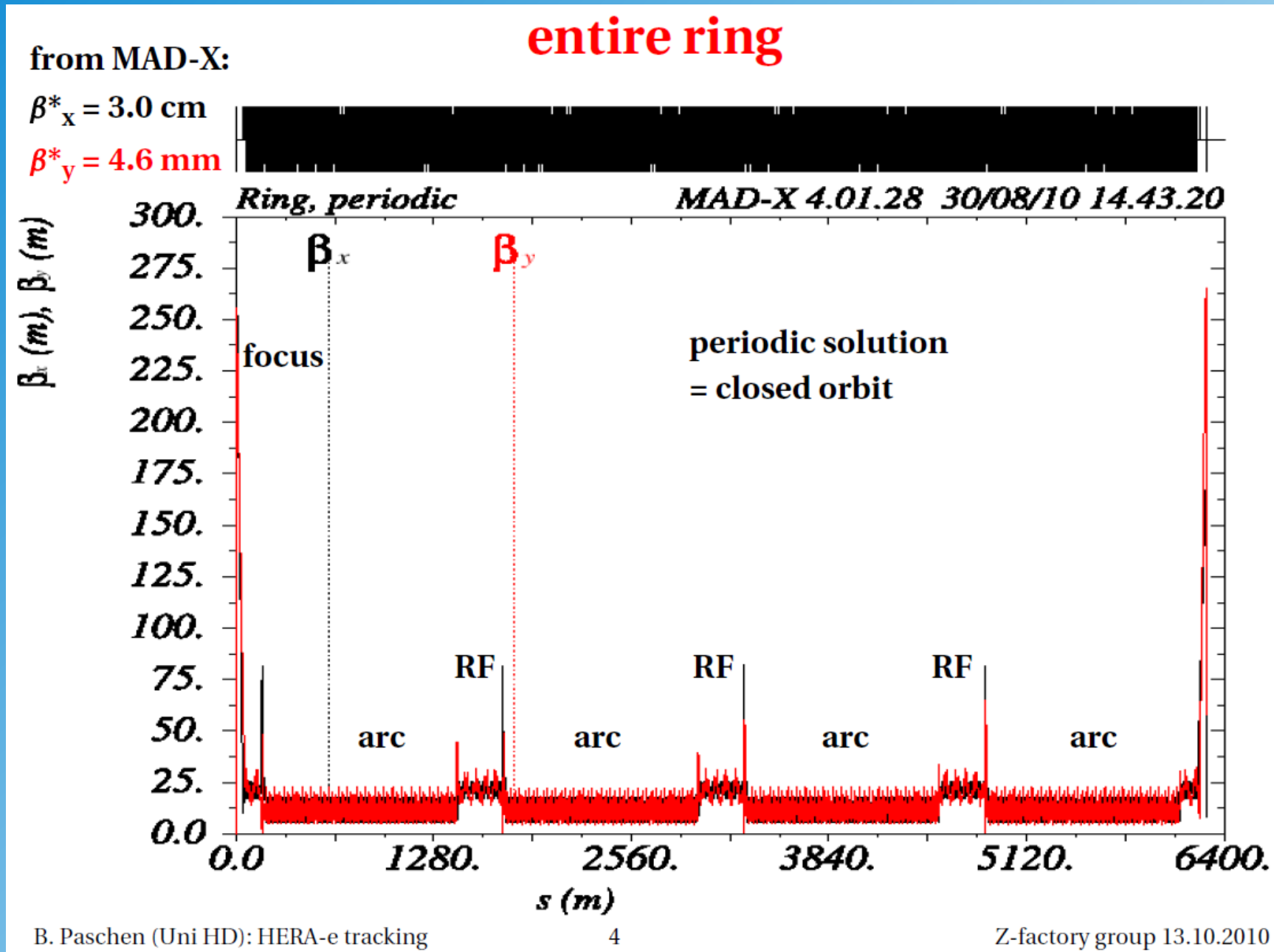
Colliders and Luminosity

- space charge limit
- optimum emittance
- Mini-beta principle

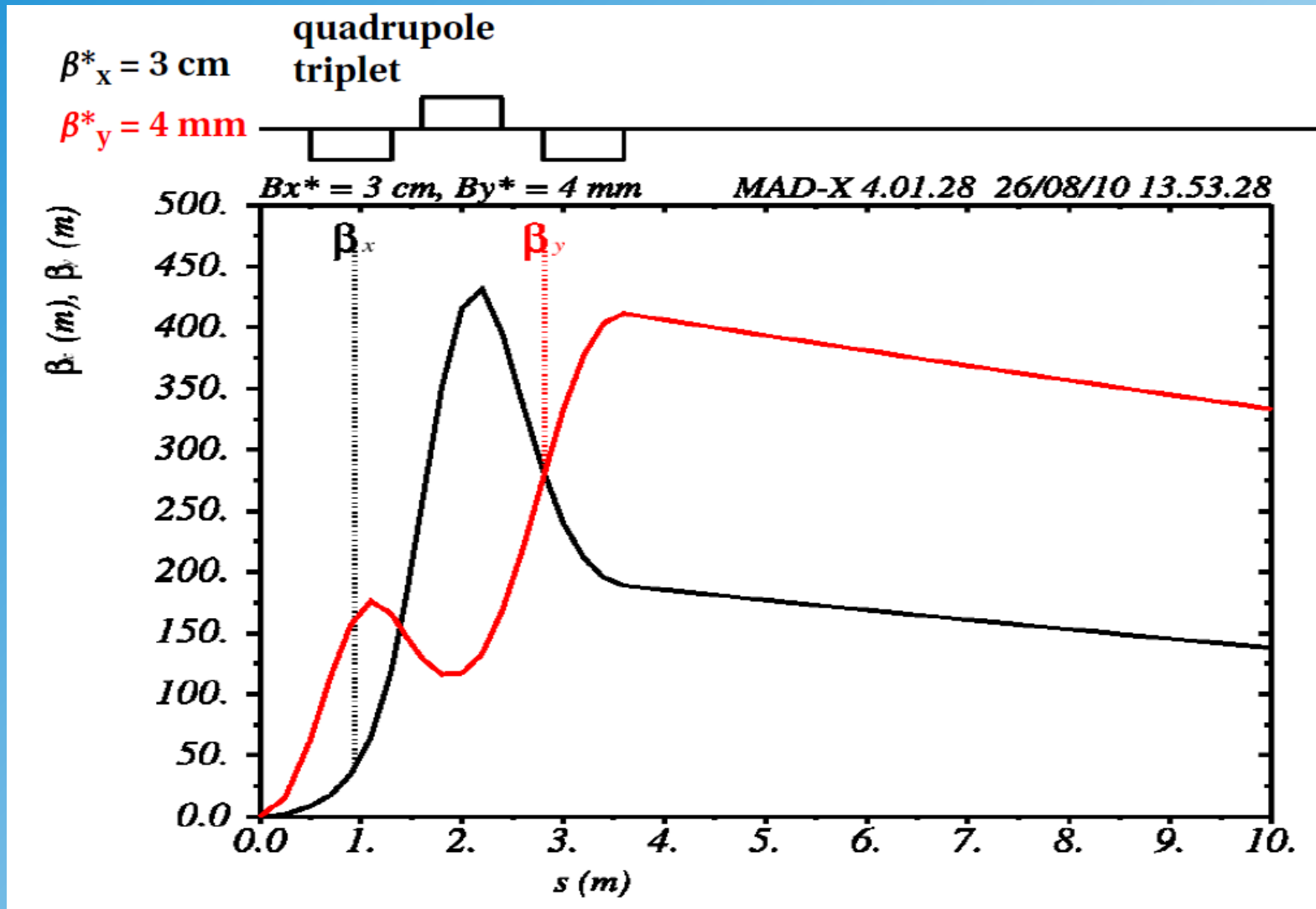
Final Focus



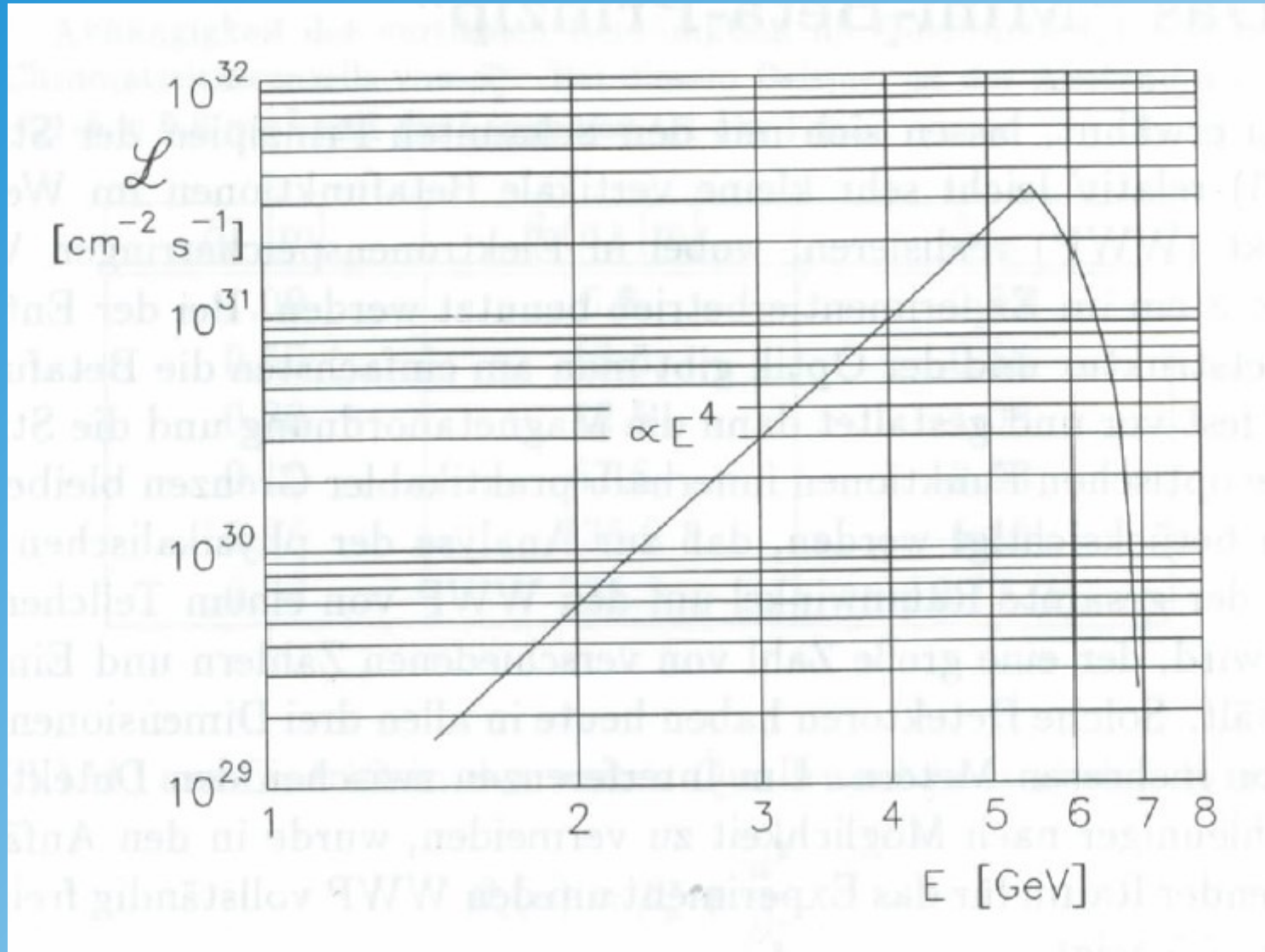
Positron Ring in HERA



Final Focus Matching

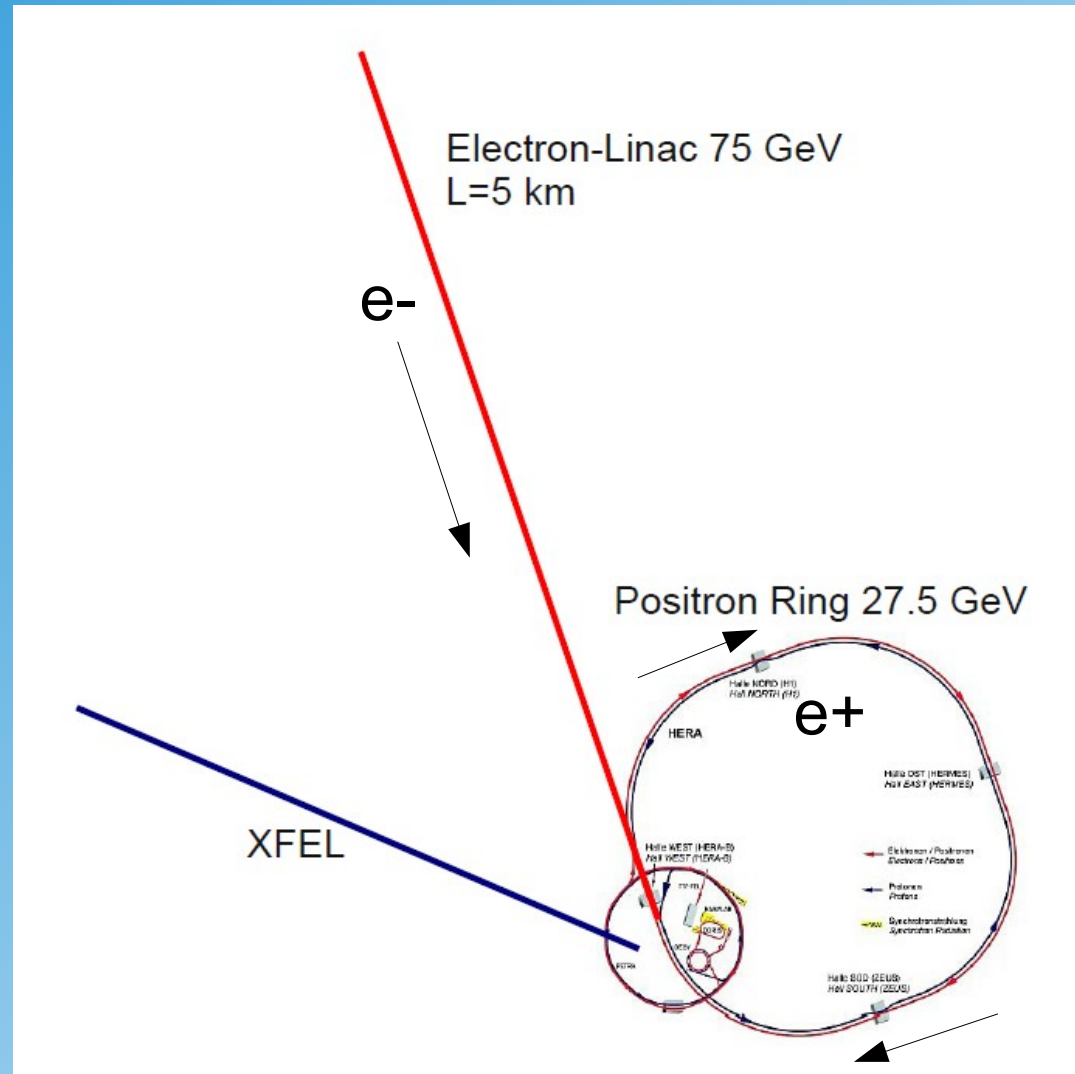


Luminosity for Beam-Beam Limit



Ring-Linac Z-Factory Proposal

- electron current limited by acceleration power
- positron current limited by synchr. radiation losses



small emittance is crucial!

Emittance in FODO Ring

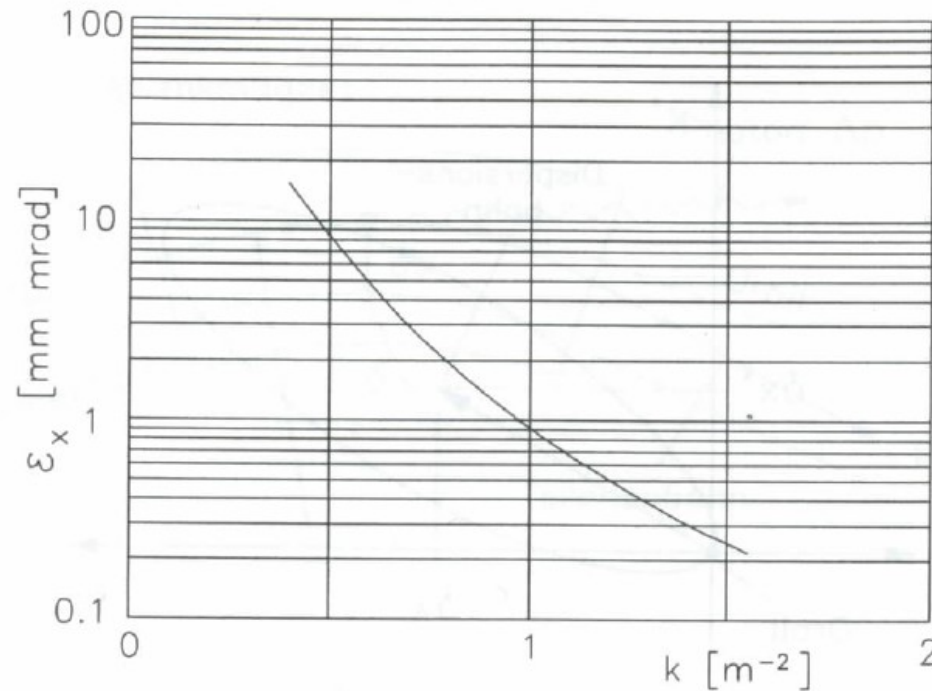


Fig. 6.5 Verlauf der horizontalen Emittanz des FODO-Modellrings als Funktion der Quadrupolstärke k .

Chromaticity from Quads

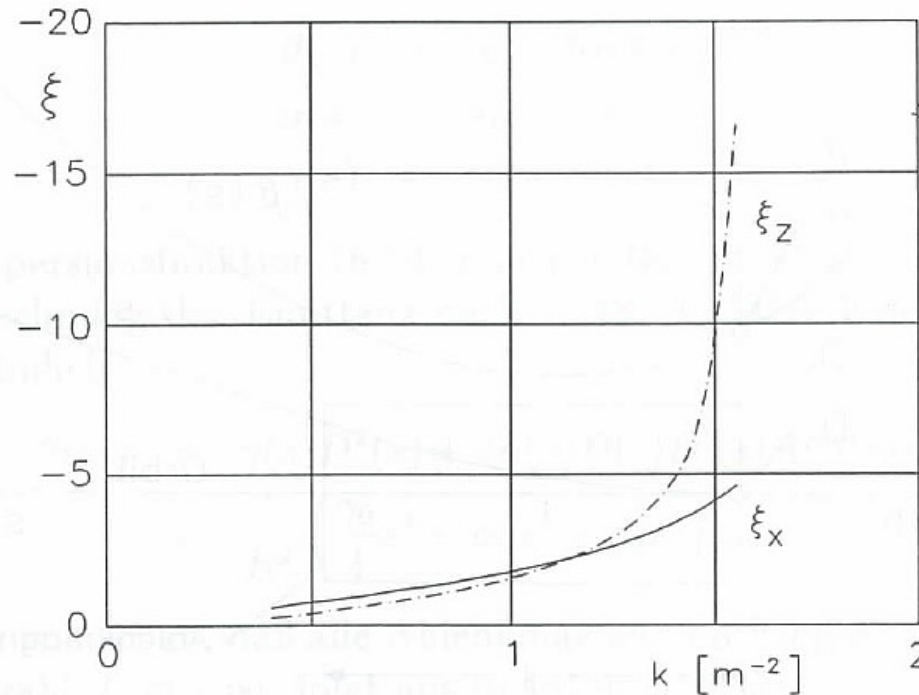
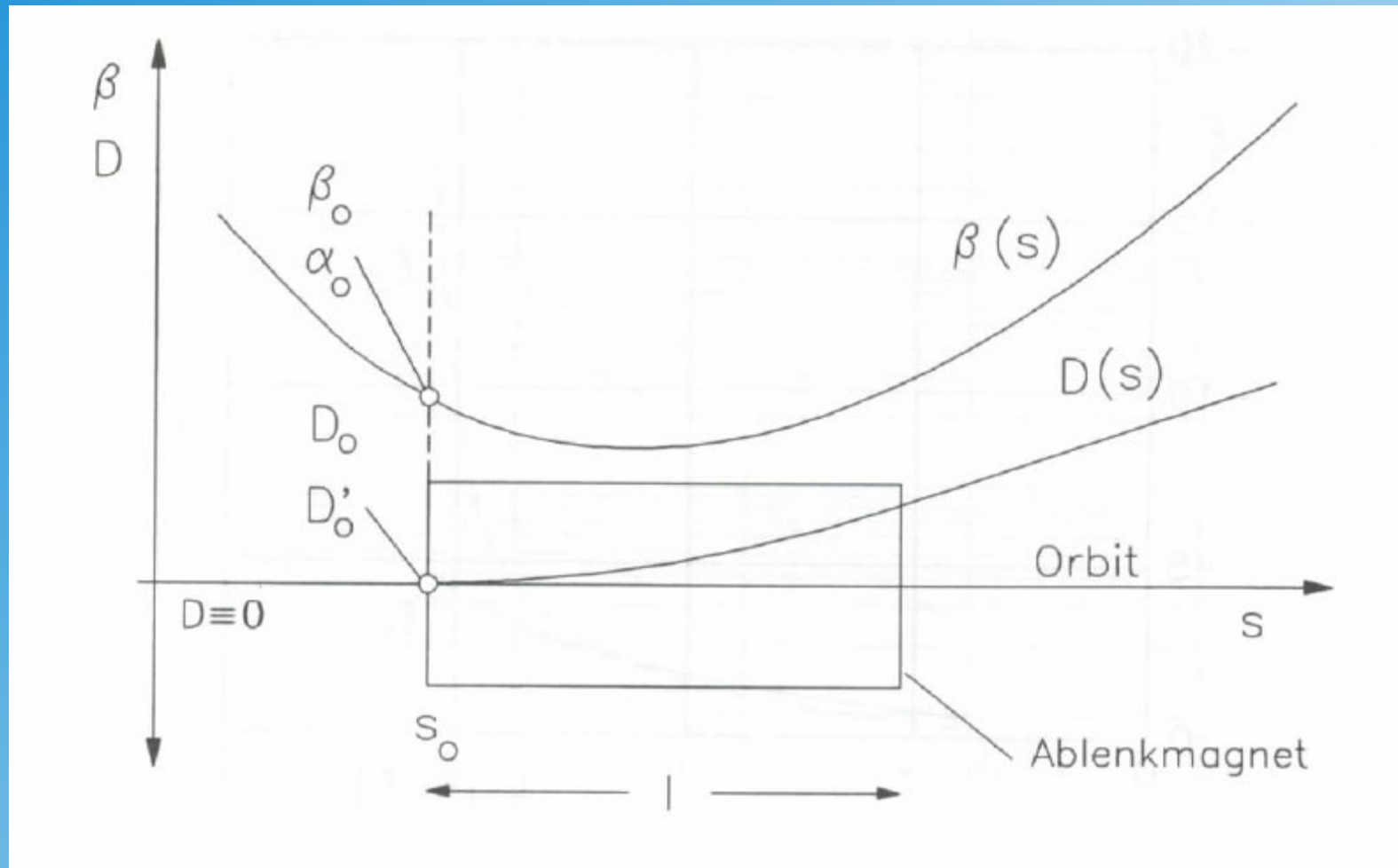
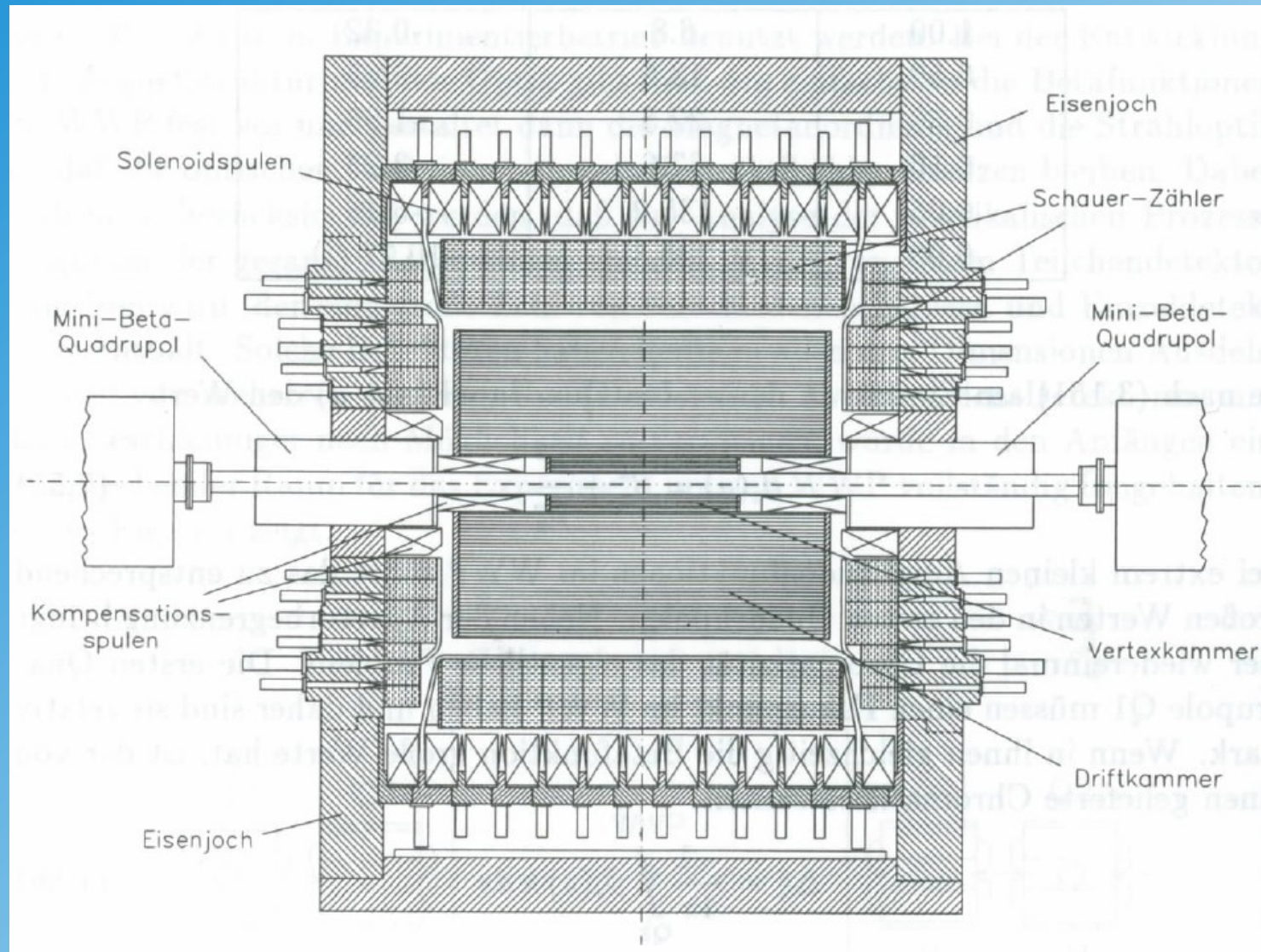


Fig. 6.6 Verlauf der horizontalen Chromatizitäten $\xi_{x,z}$ des FODO-Modellrings als Funktion der Quadrupolstärke k .

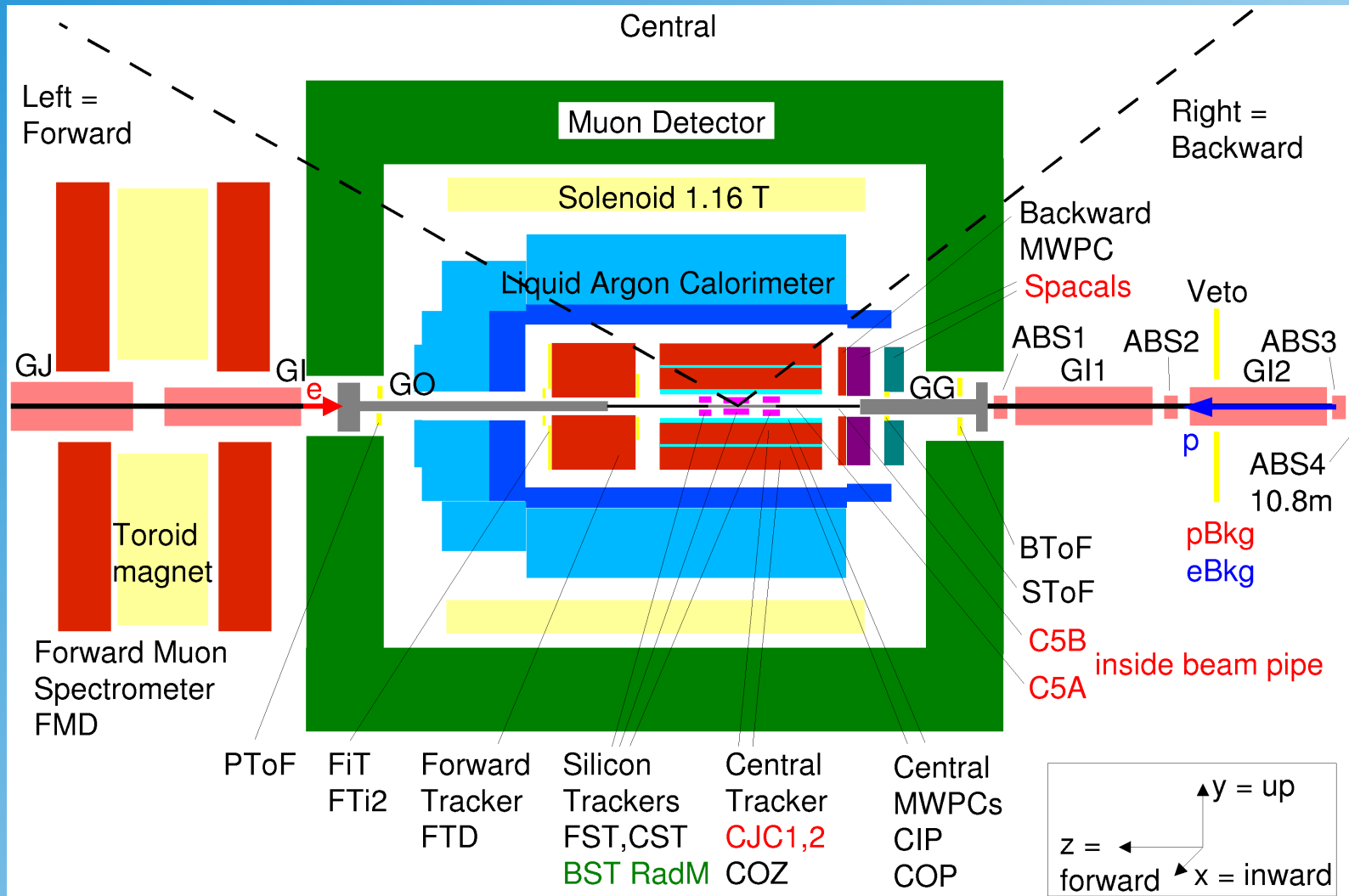
Optimum Beta Function in Dipole



ARGUS Detector (DORIS, DESY)



GO/GG Magnet at HERA (H1)



Ring-Linac Z-factory Design Study

