

European FEL Design Study, DS4 A Seeded HGHG Test Bench at MAX-lab

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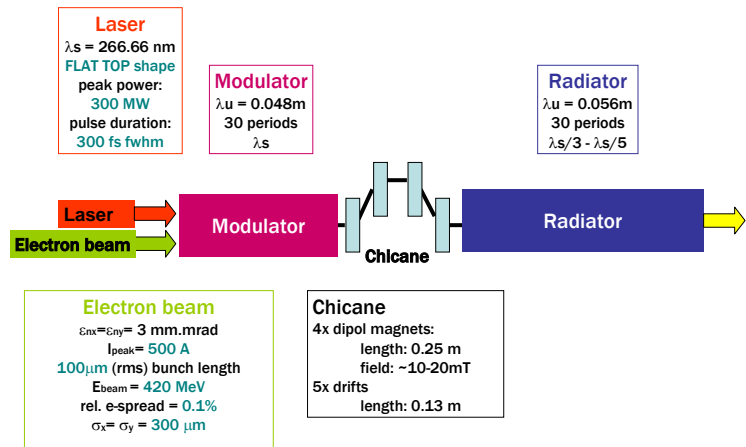


Test Bench for:

study of HGHG process dependence on various e-beam and laser parameters
calibration of FEL codes
development and test of diagnostics

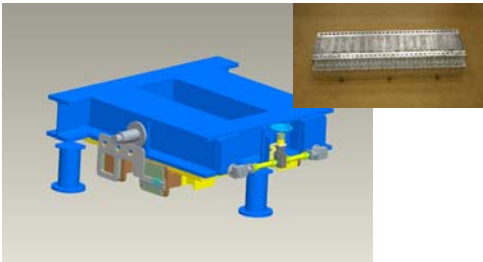
Contributions of BESSY:

production of undulators and chicane installation at Max Linac in 7 / 2006
participation in operation of FEL
GENESIS simulations

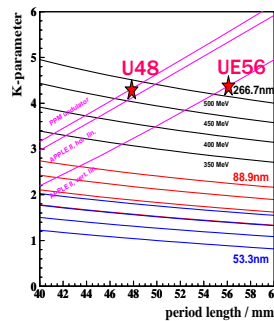


Modulator

Magnetic arrays: ESRF
Shimming: BESSY
Period length: 48mm
Number of periods: 30
Remanence: 1.15 T
Magnetic gap: 9,5mm (500MeV)



Undulator Fields

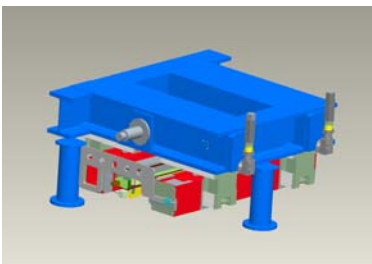


GENESIS Simulations

- Time-dependant FEL simulations of entire Modulator-Chicane-Radiator structure using GENESIS 1.3
- Simulations take into account most recent seed laser and electron beam parameters
- Computation of radiator output on **third** and **fifth** harmonic (88.8nm/53.3nm)
- Study of dependance on seed laser power
- Study of influence of relevant electron beam parameters such as relative energy-spread

Radiator

Magnetic arrays: BESSY UE56 module
Polarization: variable (APPLE II)
Period length: 56 mm
Number of periods: 30
Remanence: 1.2 T
Magnetic gap: 12,0 mm (500MeV)



Magnetic Field Measurement

