First Light from TELBE

First Light from the ELBE Super-Radiant THz Source

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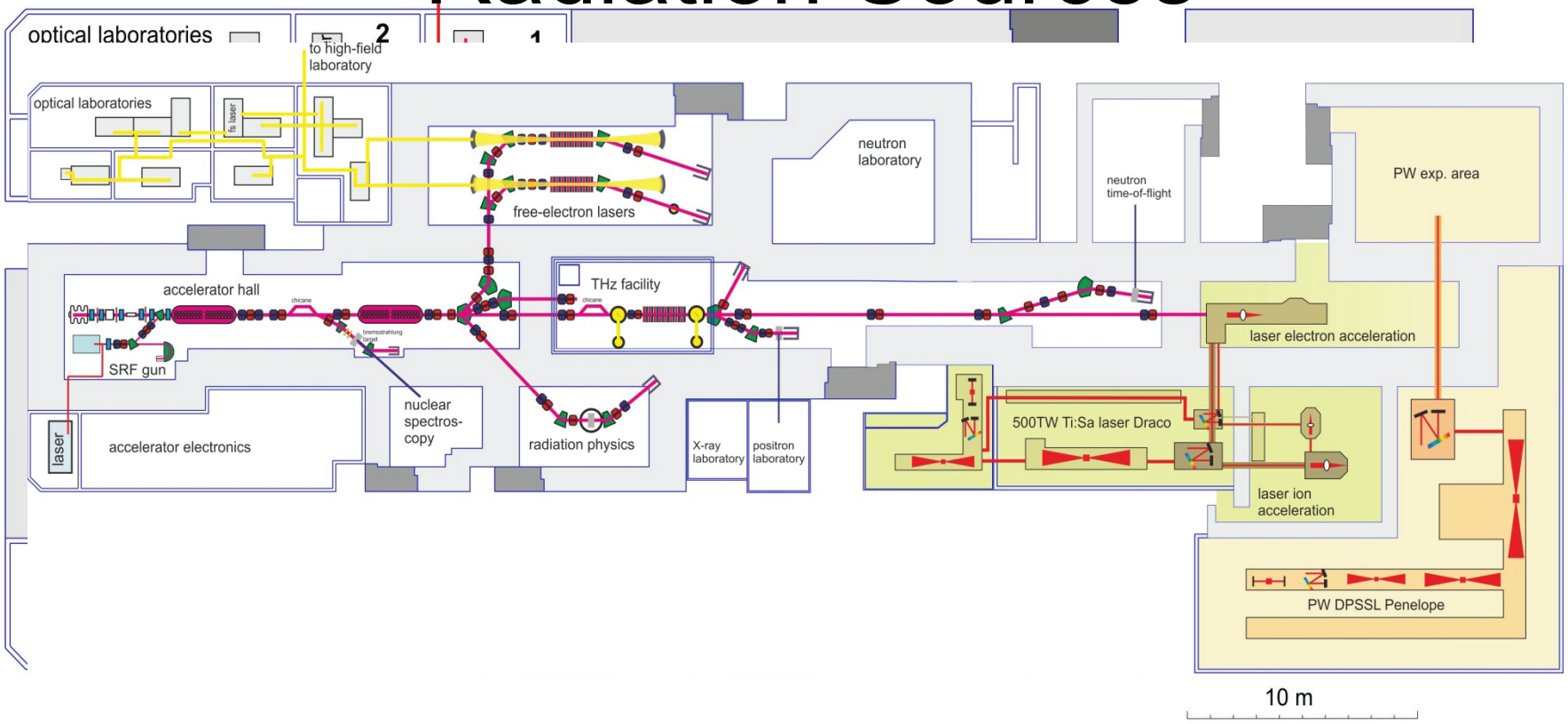
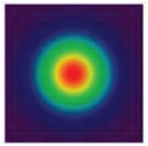
HZDR

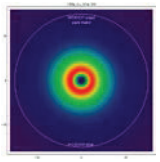
HELMHOLTZ ZENTRUM DRESDEN ROSSENDORF

ELBE Center for High-Power Radiation Sources





undulator radiation



CDR / CTR

to dump

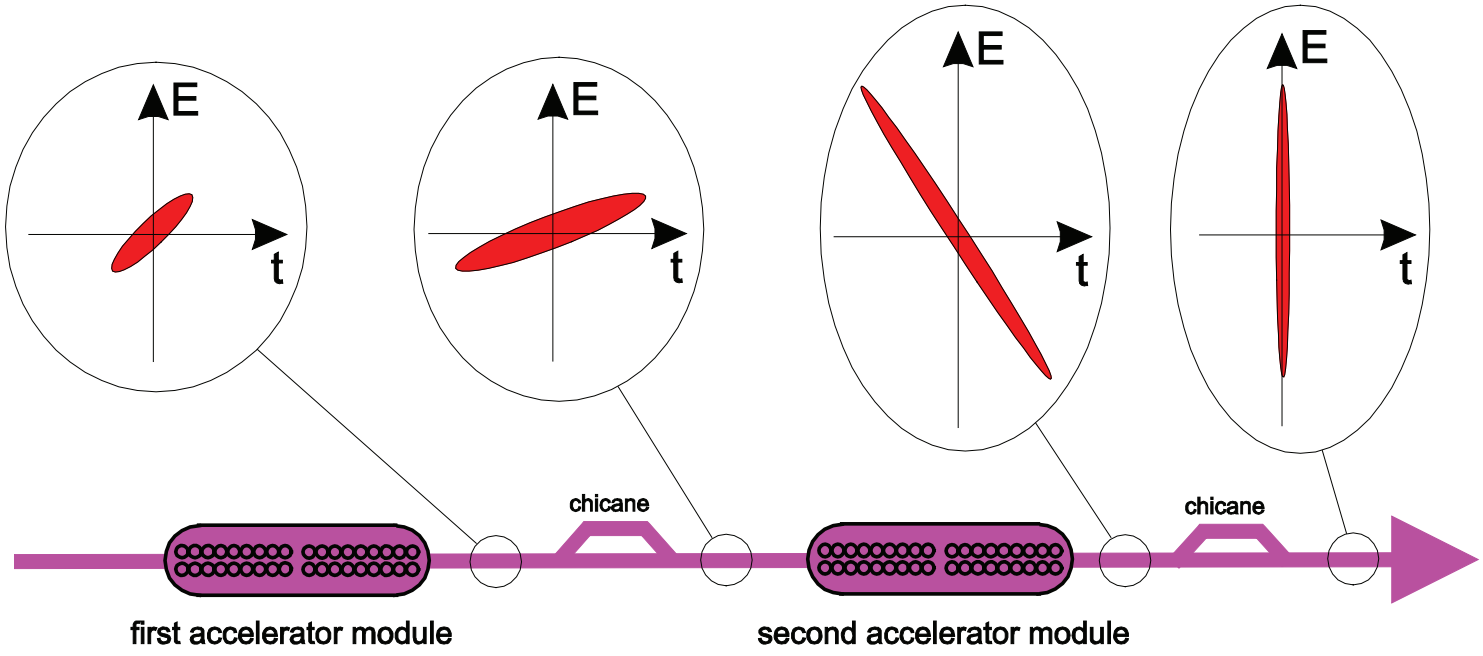
electron beam
from bunch
compressor

WEPS021
WEPS025
WEPS035

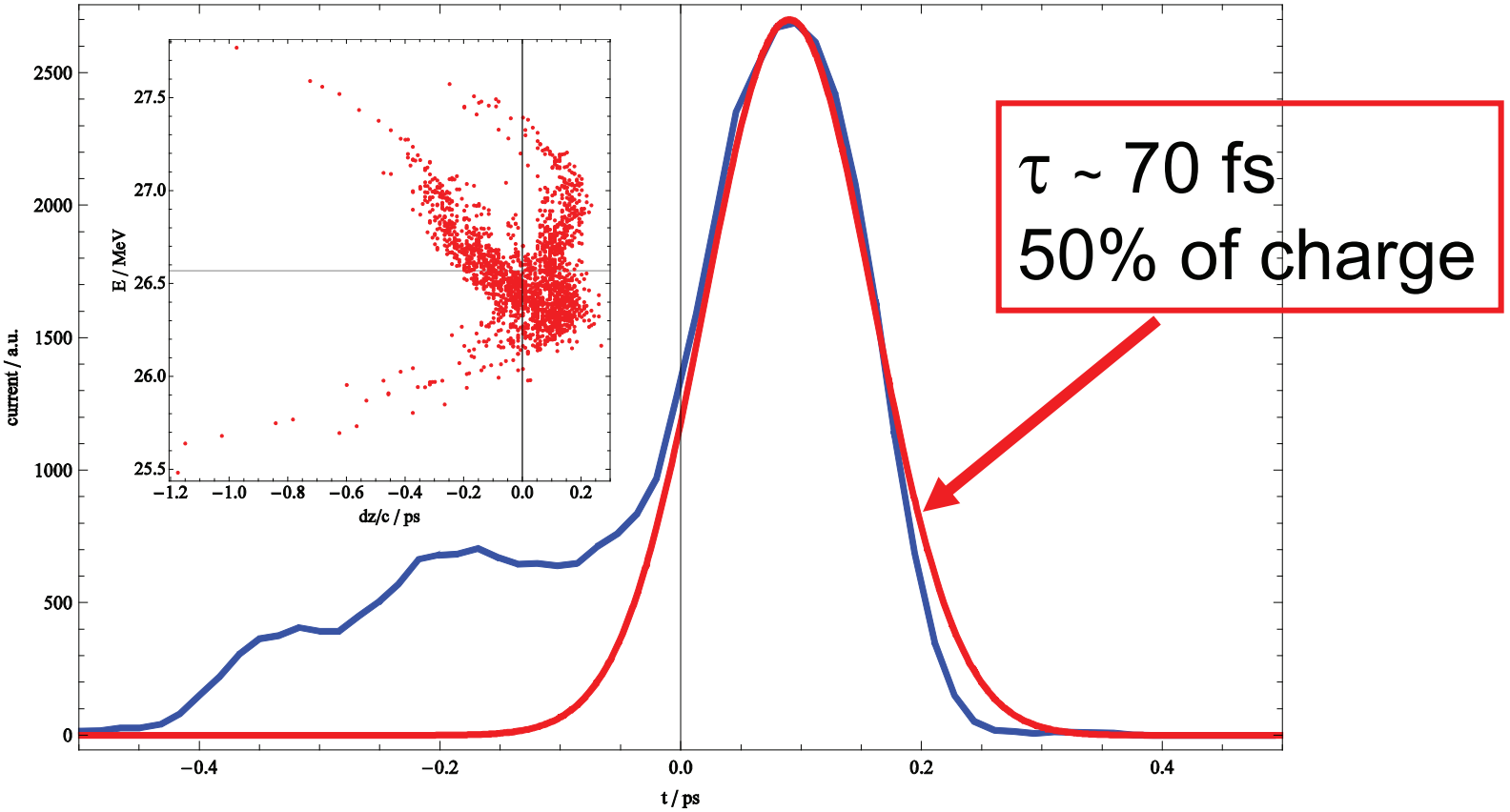
Bunch Compression Scheme

C = 77 pC
ε_E = 35 π keV ps

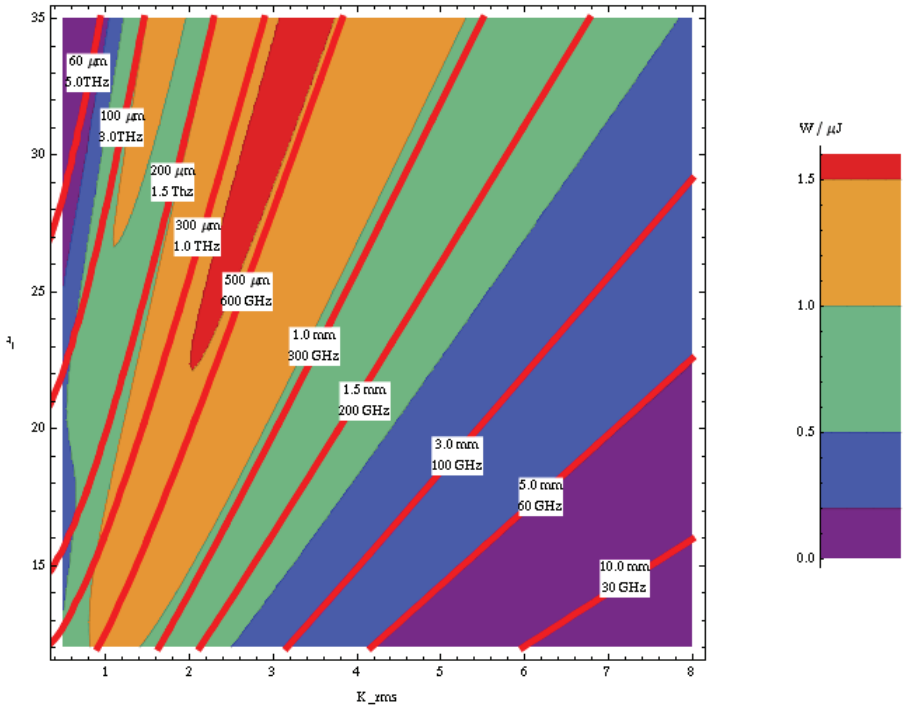
E = 28 MeV
σ_E = 250 keV
τ = 150 fs



Longitudinal Bunch Profile



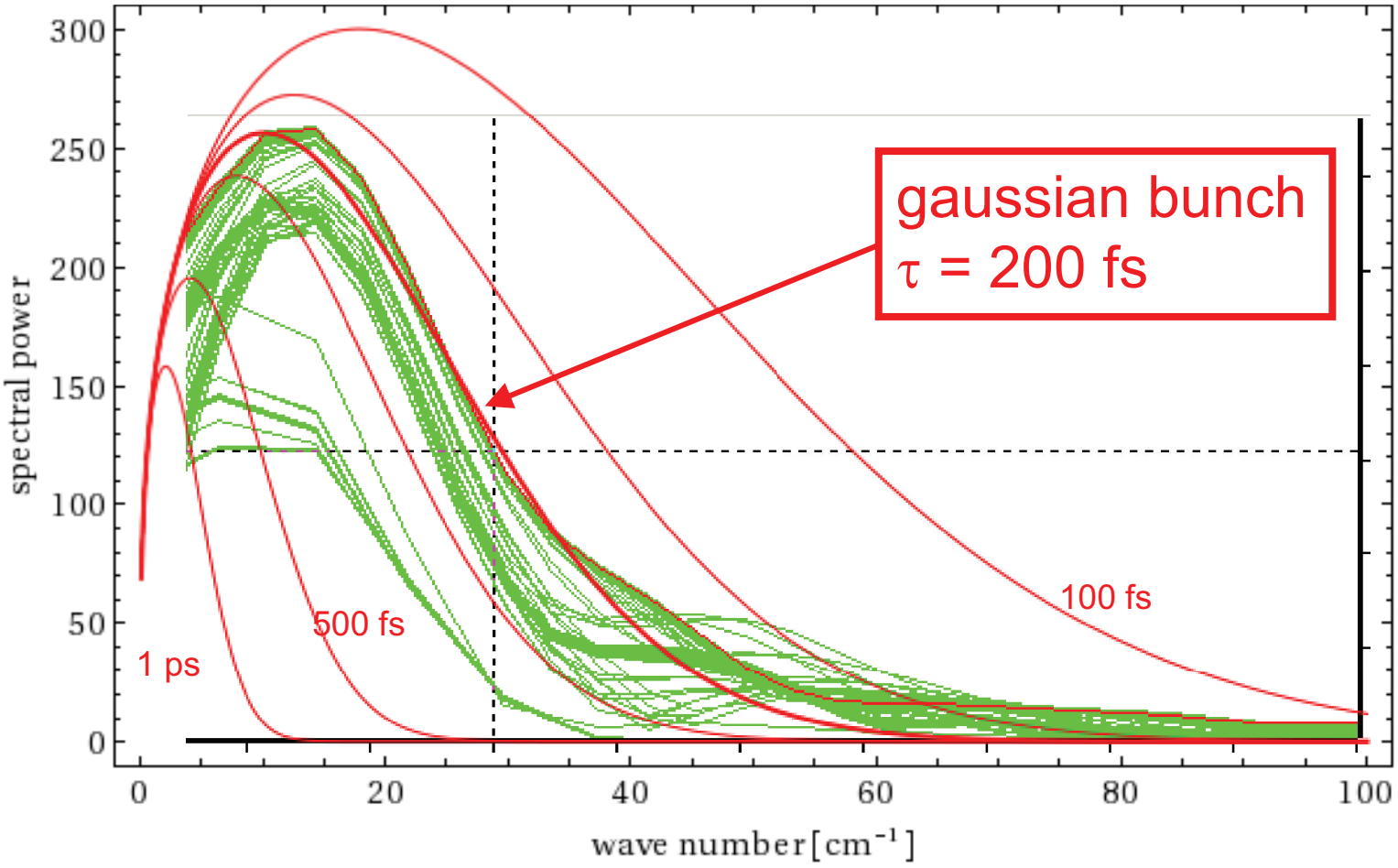
Pulse Energy of Undulator Radiation



several 10 mW of THz
undulator radiation measured
at 80 pC 100 kHz cw
f=1 Thz, λ=300μm

design target at 77pC :
100 mW = 1μJ * 100kHz

Online THz Diagnostics



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