





Orbit and power growth along the undulator

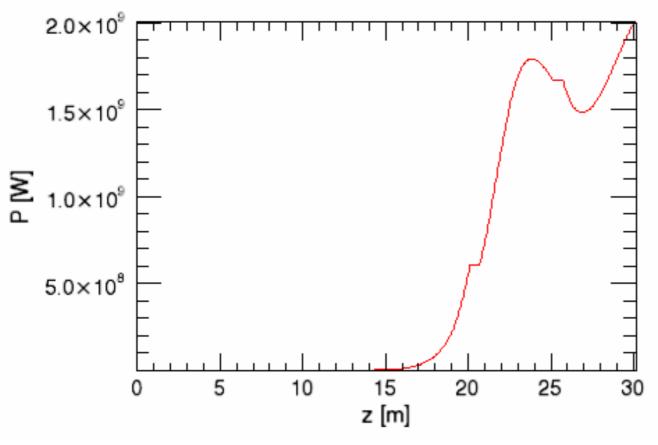
Bart Faatz



Ideal case, steady state







700 MeV (13 nm)
2 mm mrad
0.2 MeV energy spread
1.3 kA current

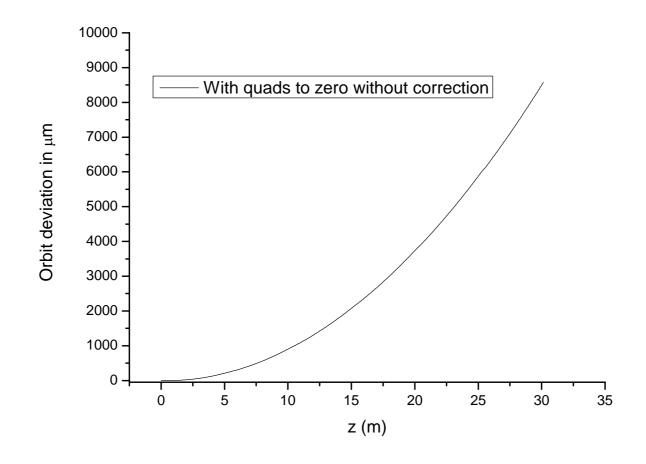
1.8 GW at 24 m

Orbit with homogeneous dipole field of 0.5 Gauss





The orbit given corresponds to an angle of 200 µrad, quads set to zero

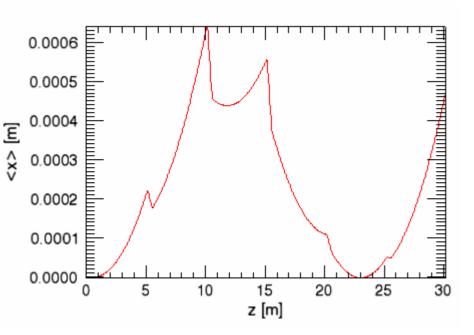


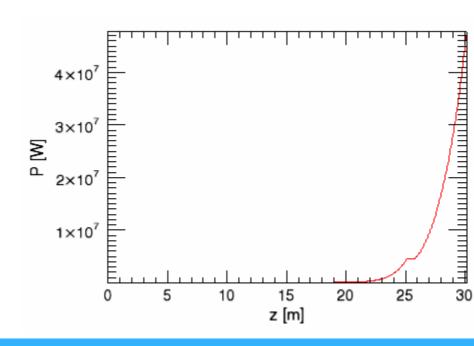


With dipole field and quads, NO correction







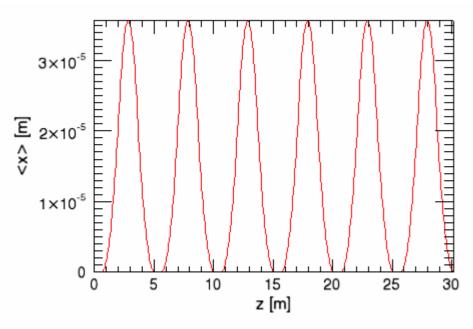




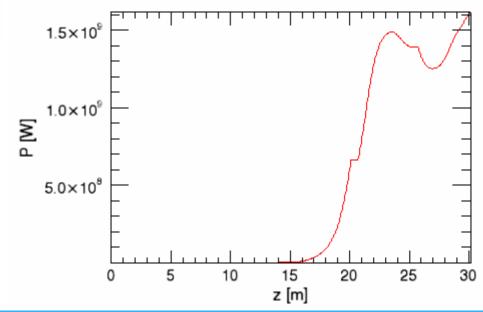
Correction with steerers integrated inside the undulator







Maximum deviation of 35 μ m Power reduction from 1.8 to 1.5

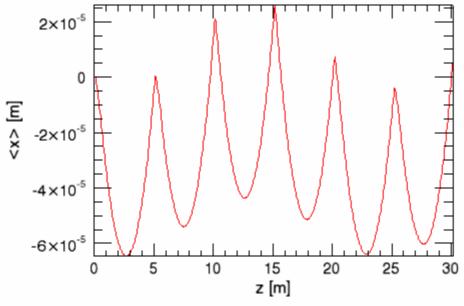




Correction with quad movers inside the undulator

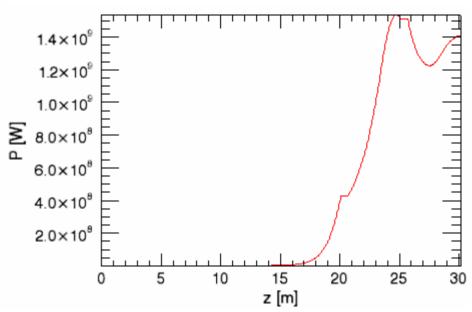






Maximum deviation of 60 μ m Power reduction from 1.8 to 1.4

Q5UND# Quads moved by 80 μ **m**





To be studied





- •Check influence on beam quality (saturation length and power)
- •Further correct orbit with quads (not yet optimum)
- •Combined correction quads and steerers

What if we add to this a 'non-ideal' orbit, i.e. betatron oscillation etc?