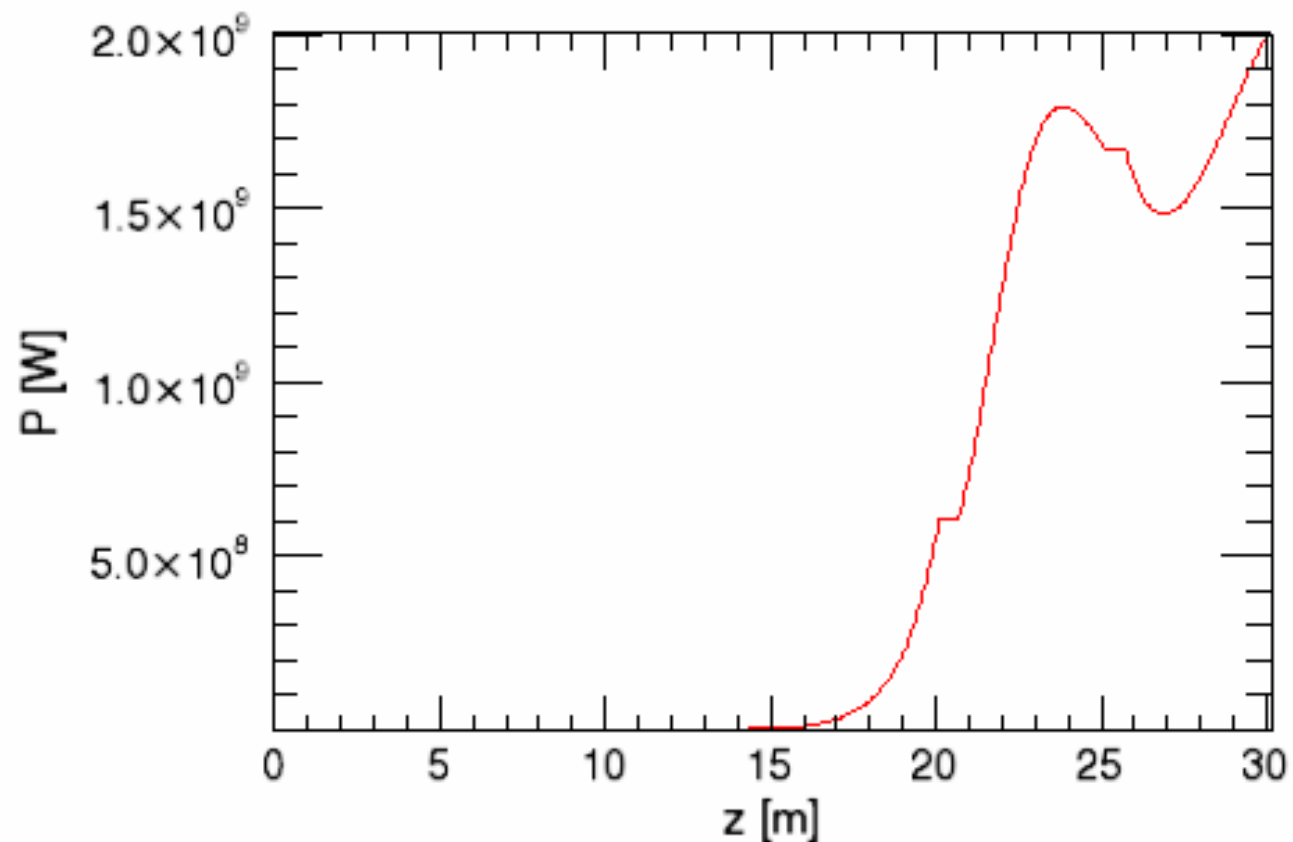


Orbit and power growth along the undulator

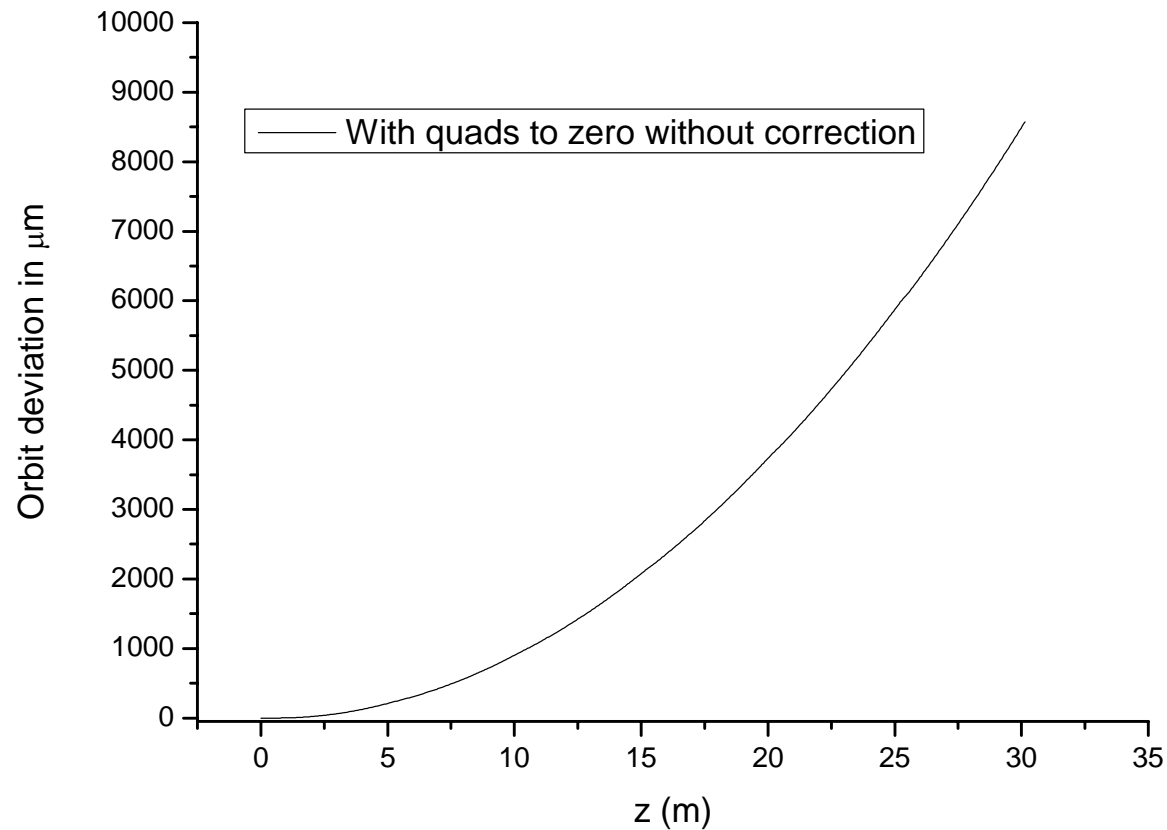
Bart Faatz

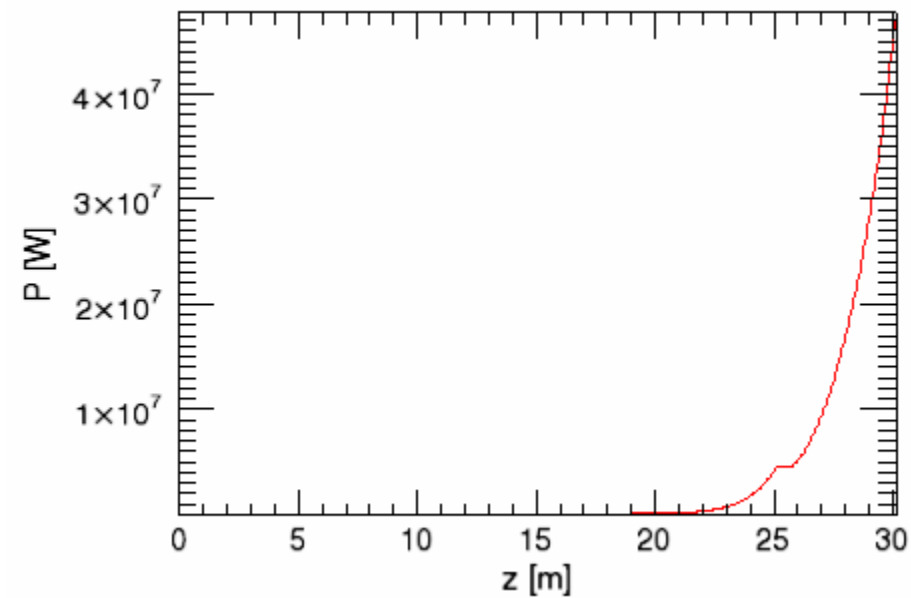
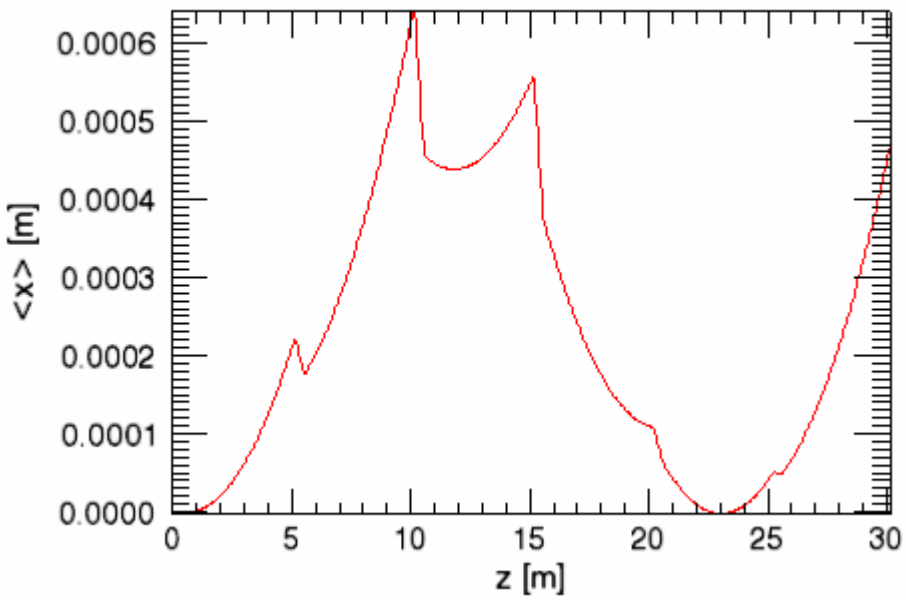


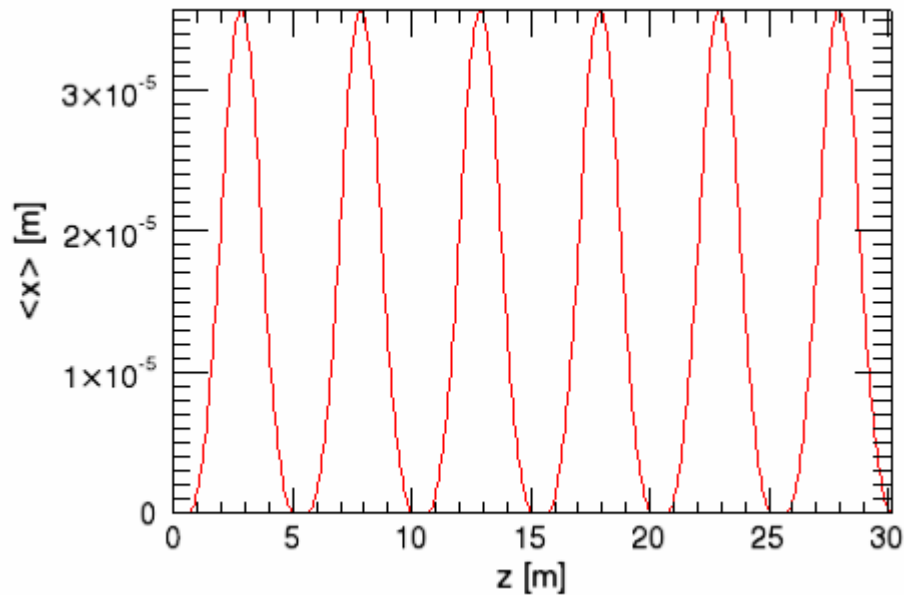
700 MeV (13 nm)
2 mm mrad
0.2 MeV energy spread
1.3 kA current

1.8 GW at 24 m

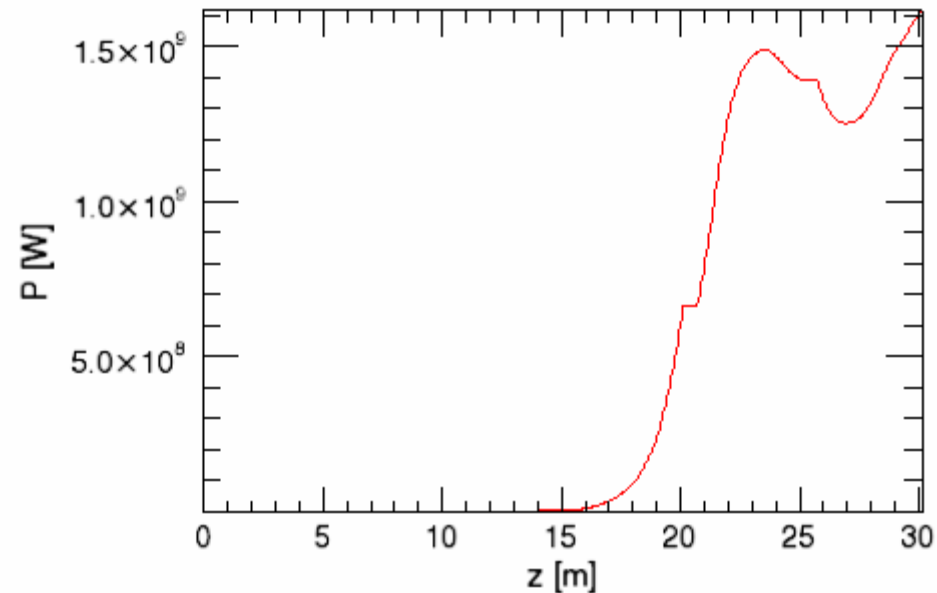
The orbit given corresponds to an angle of $200 \mu\text{rad}$, quads set to zero



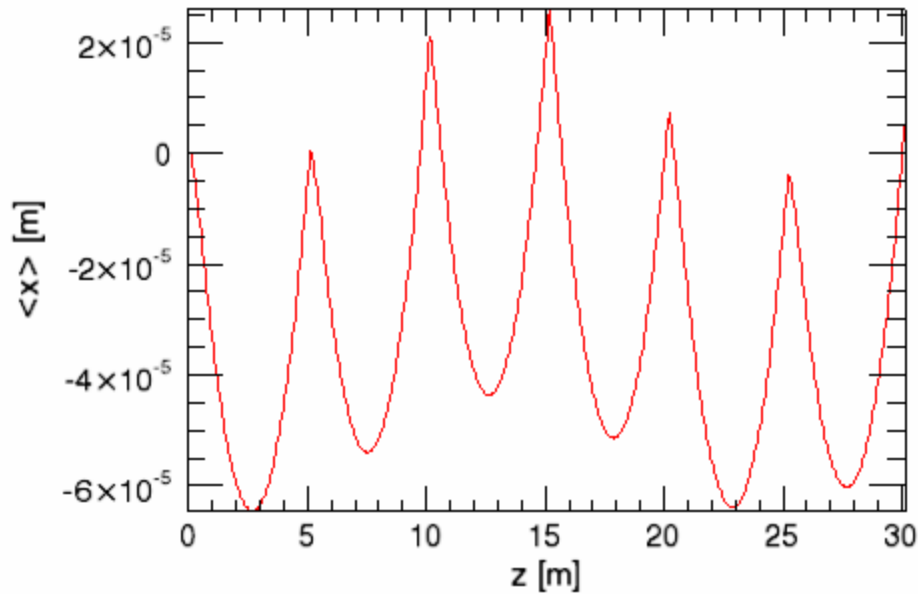




Maximum deviation of $35 \mu\text{m}$
Power reduction from 1.8 to 1.5

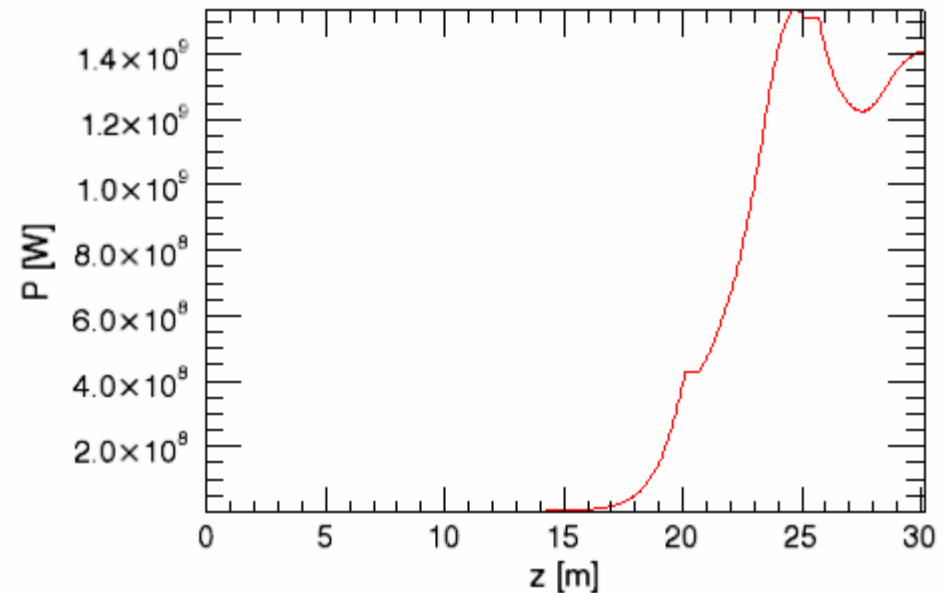


Correction with quad movers inside the undulator



Q5UND# Quads moved by $80 \mu\text{m}$

**Maximum deviation of $60 \mu\text{m}$
Power reduction from 1.8 to 1.4**



- *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?