Preliminary simulation results for SEY reduction using a magnetostatic field modulation pattern near the surface

by Warner Bruns

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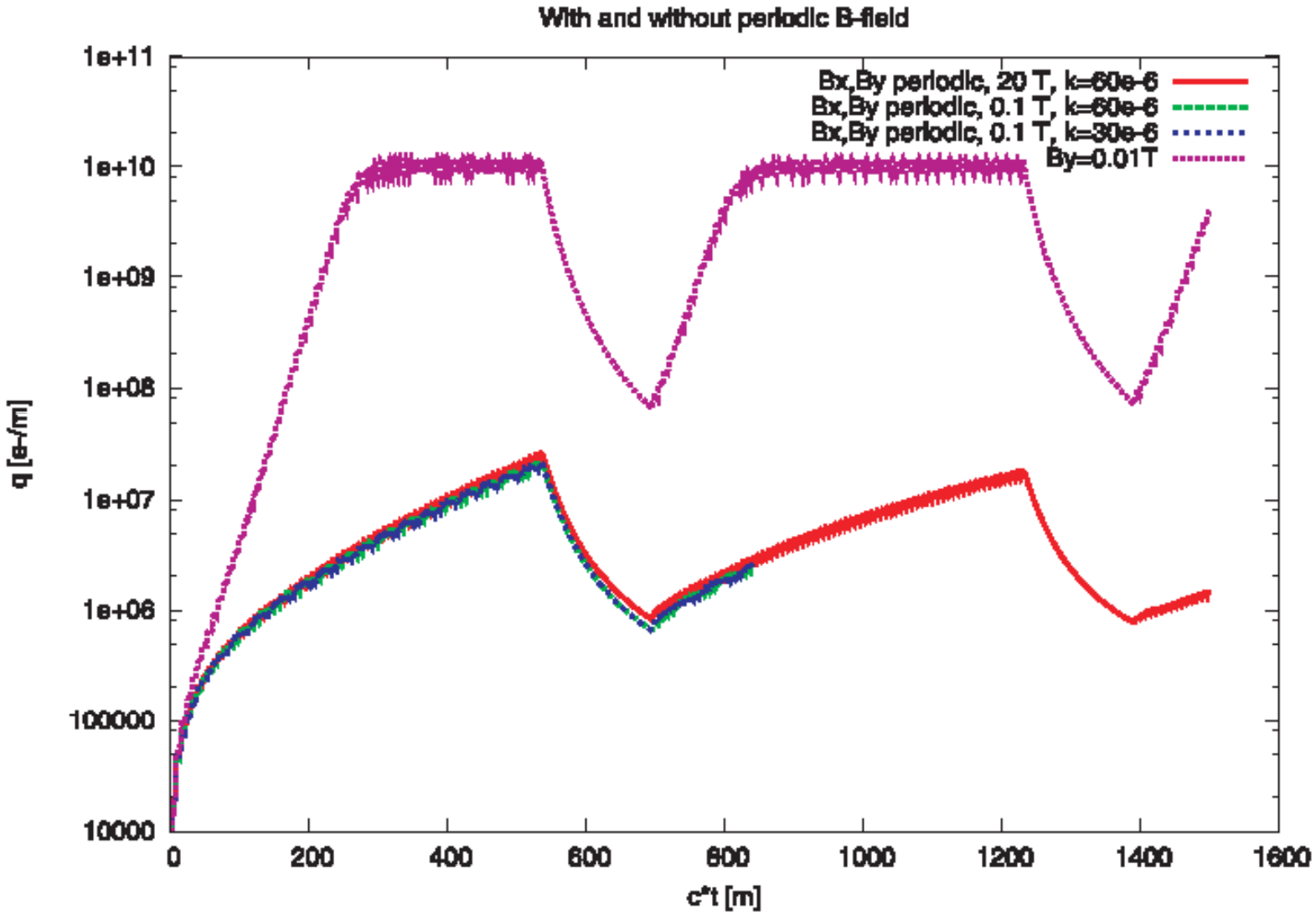
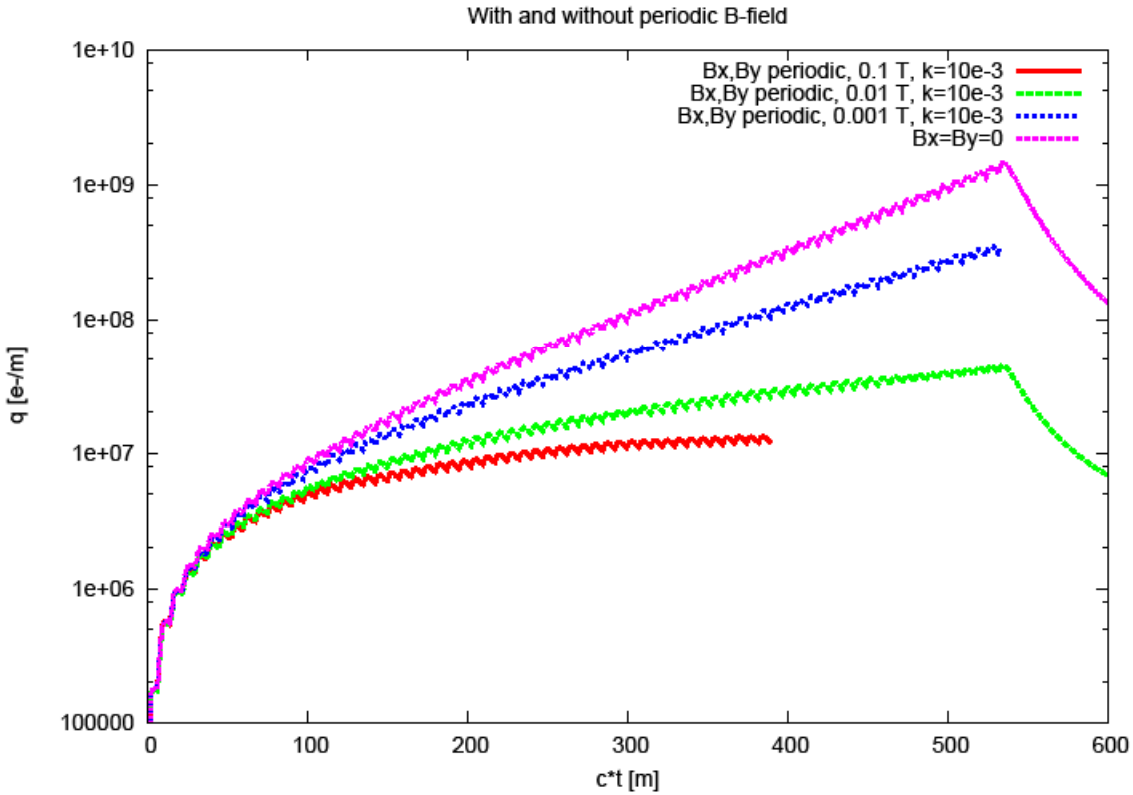
The different traces were calcuated using a “bending field” By=0.01 T, and in addition with a periodic field on the surface with a periode length of 60 and 30 micron respectively and 0.1 Tesla Instensity. (the 20 tesla are an “accident”)

Apart from this we have the parameter :
rectangular beampipe, width=2 * 7.6cm, height= 2 * 1.75 cm
Bunchspacing = 7.48 Metern
72 populated buckets, 21 empty buckets 11.5e10 electrons per bunch, sigma= 0.2
SEY=1.5 bei 200 eV


With and without periodic B-field
Bx,By periodic, 20 T, k=60e-6
Bx,By periodic, 0.1 T, k=60e-6
Bx,By periodic, 0.1 T, k=30e-6
By=0.01T
q [e-/m]
1e+11
1e+10
1e+09
1e+08
1e+07
1e+06
100000
10000
0
200
400
600
800
1000
1200
1400
1600
c*t [m]



Angehaengt findest du Ergebnisse fuer periodische B-Felder mit Periodenlaenge 10mm. Amplitude nahe der Oberflaeche 0.1T, 0.01T, 0.001T.
Und ganz ohne Feld. Die Simulationen hatten ansonsten kein B-Feld.
Bei 0.001T nimmt der Effekt schon ziemlich ab.
Die Geometrie ist wie vorher, rechteckig, Beamparameter wie gehabt, Strahlpopulation soweit erhoeht, dass ohne B-Feld ordentlich ElectronCloud auftritt.