wakes in CSRtrack

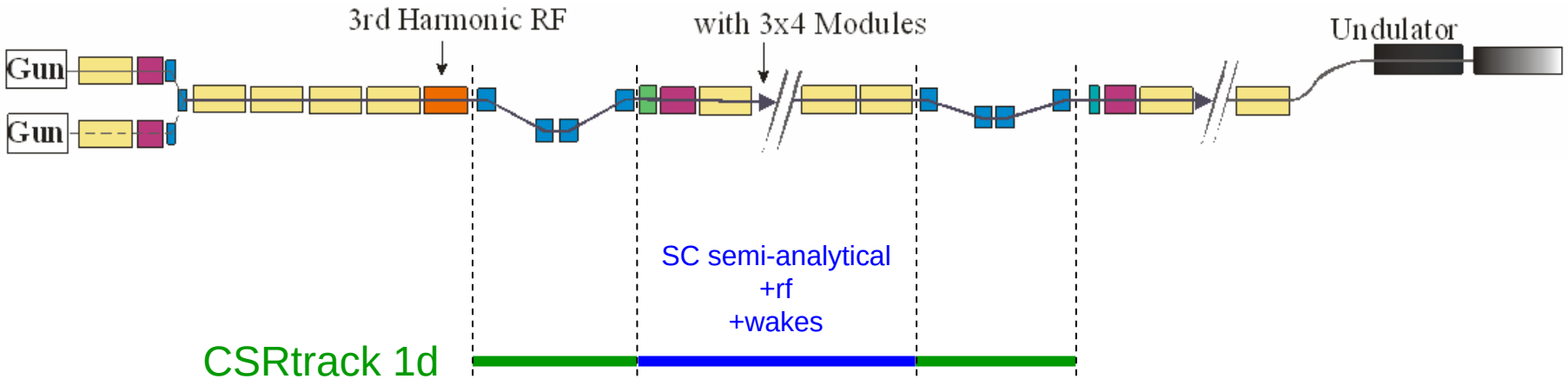
implemented for ‘projected’ CSR model

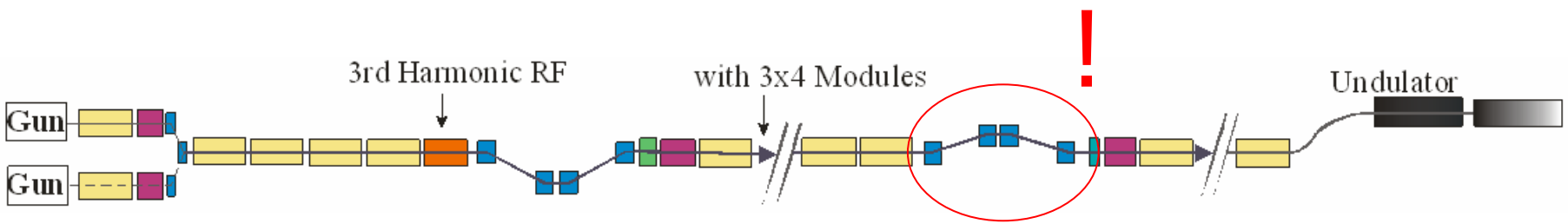
table with longitudinal wake per length (optional)

```
forces{type=projected
       sigma_file=sub_bunch.dat
       sigma_long=file
       par1=1 par2=10000
       shield=0.008
       wake_file=wake_st_flat_2x4mm.dat
      }
```

shielding by horizontal PEC planes
gap (shield) = 8mm
wake = steady state wake of flat chamber
steel, gap = 8mm

bc1 – bc2 compensation



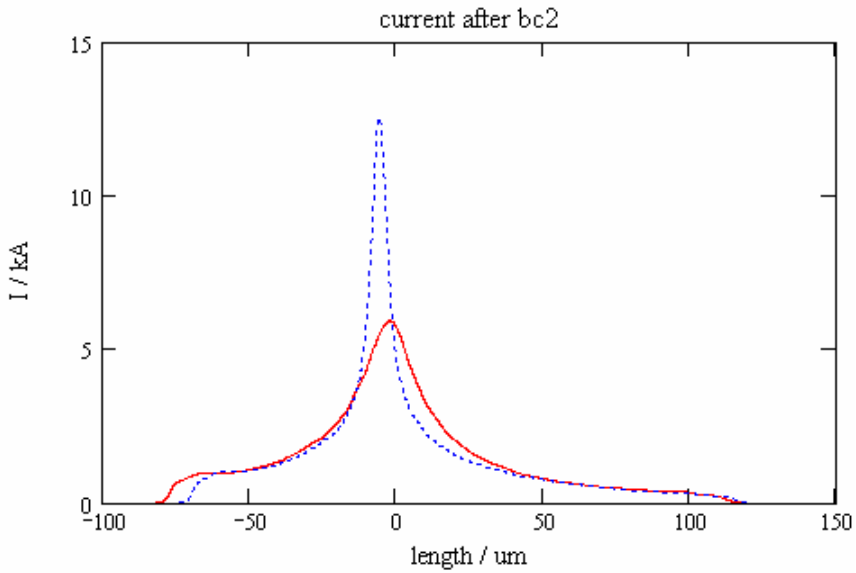


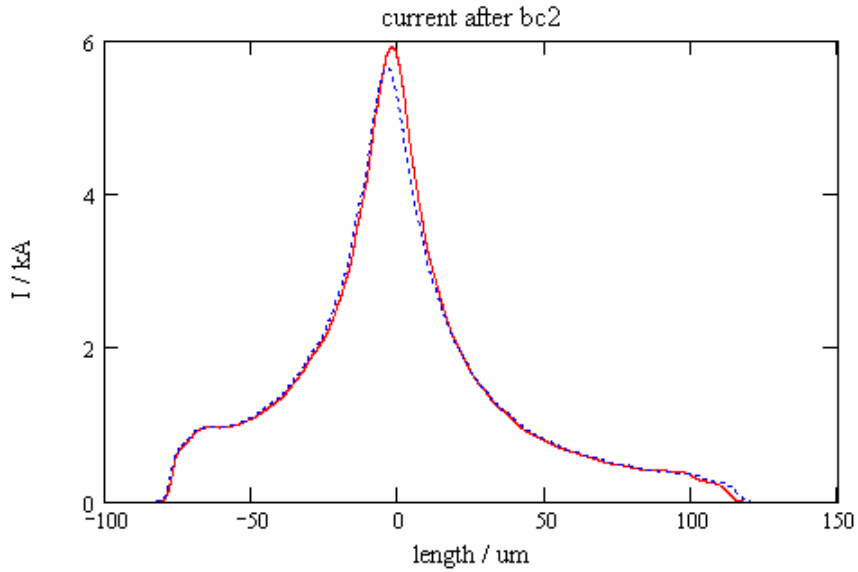
gap = 8 mm

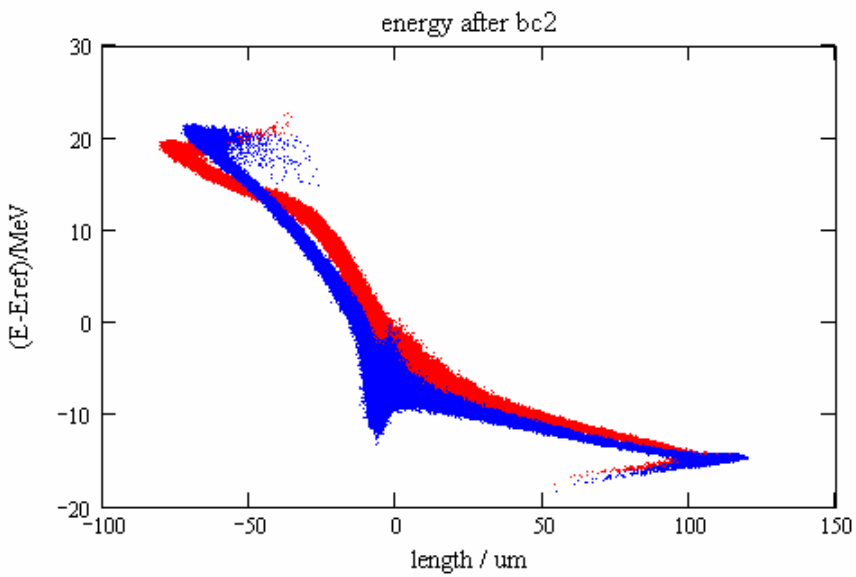
copper, steel (same rf settings for all calculations)

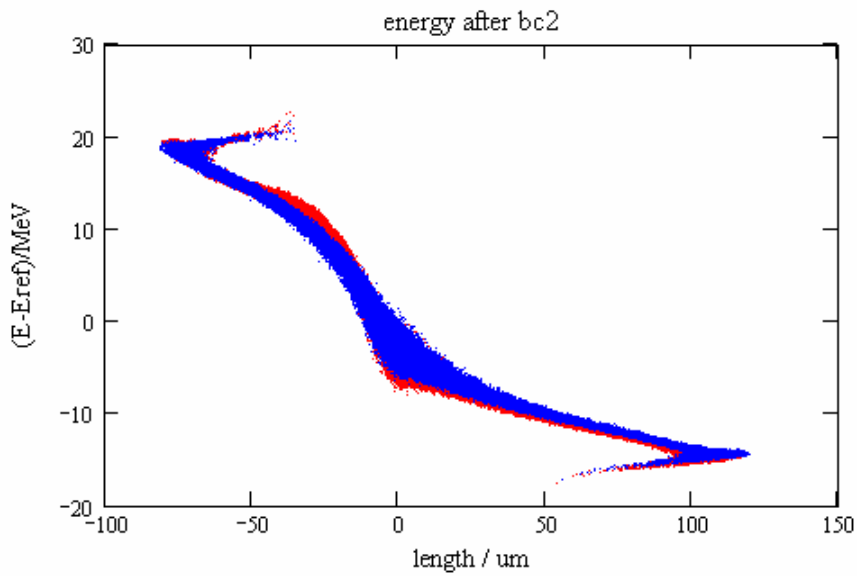
copper

gap = 8 mm , 20 mm

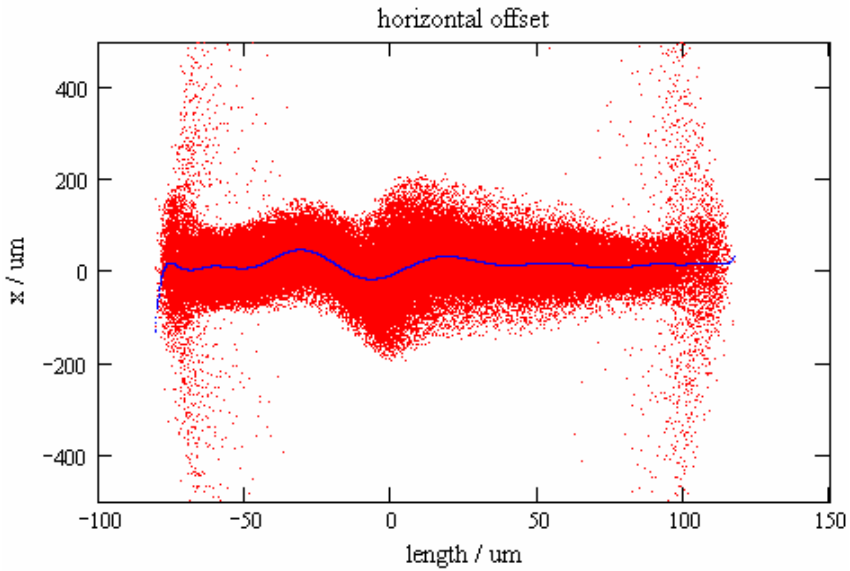


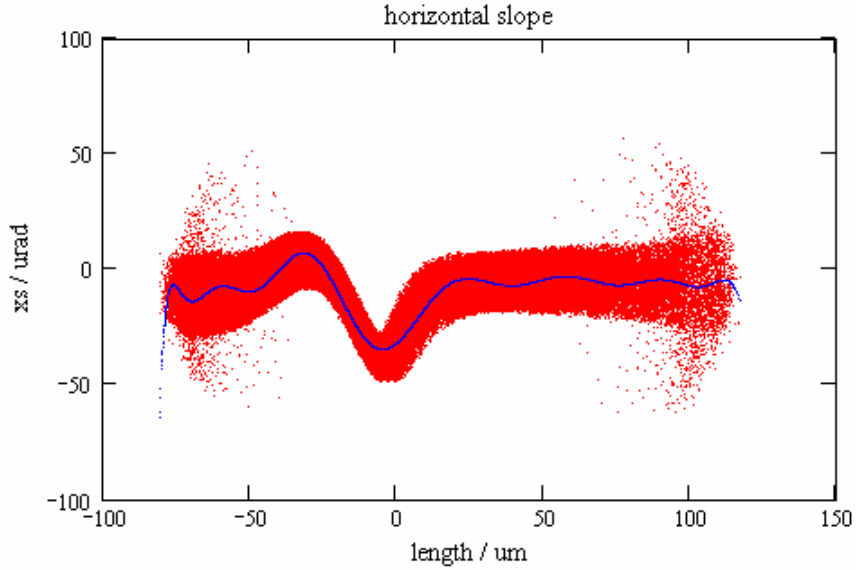




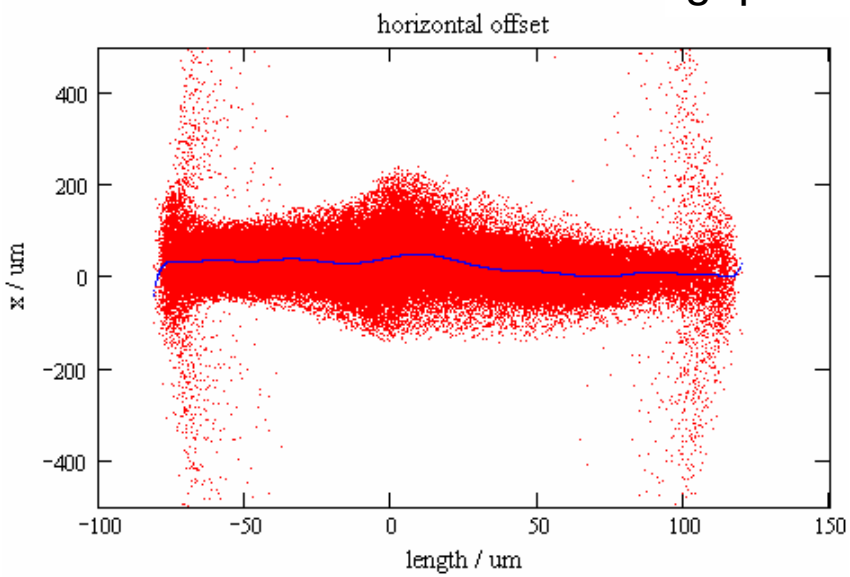


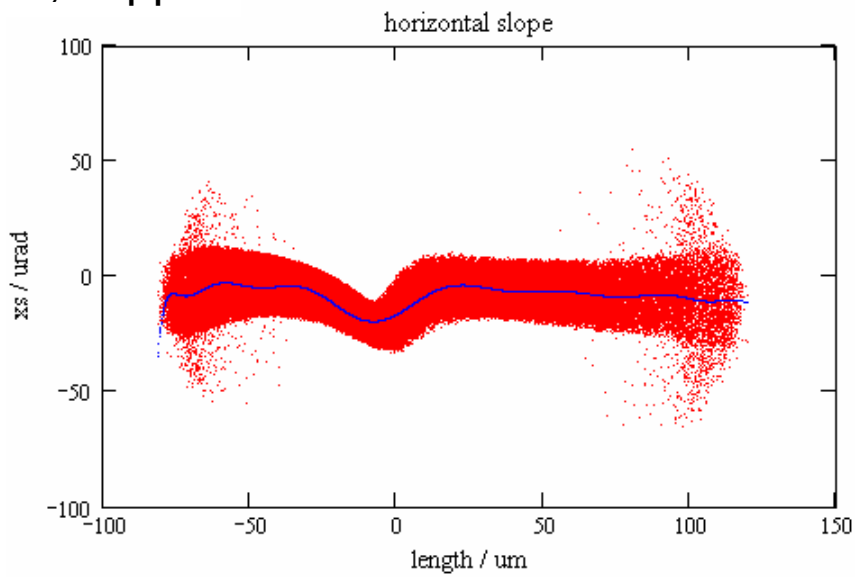
gap = 8 mm, copper





gap = 20 mm, copper





peak current and projected emittance

(same rf settings for all calculations)

material	gap / mm	I / kA	ε_{xn} / µm (normalized, horizontal)
3d csr&astra	∞	5.3	1.5
projected	∞	5.18	1.16
cu	20	5.6	1.5
cu	16	5.7	1.7
cu	10	5.8	2.2
cu	8	5.9	2.5
steel	8	12.5	8.5
pec	8	5.4	1.4