Long Merge vs initial long emittance

R. B. Palmer
(BNL)

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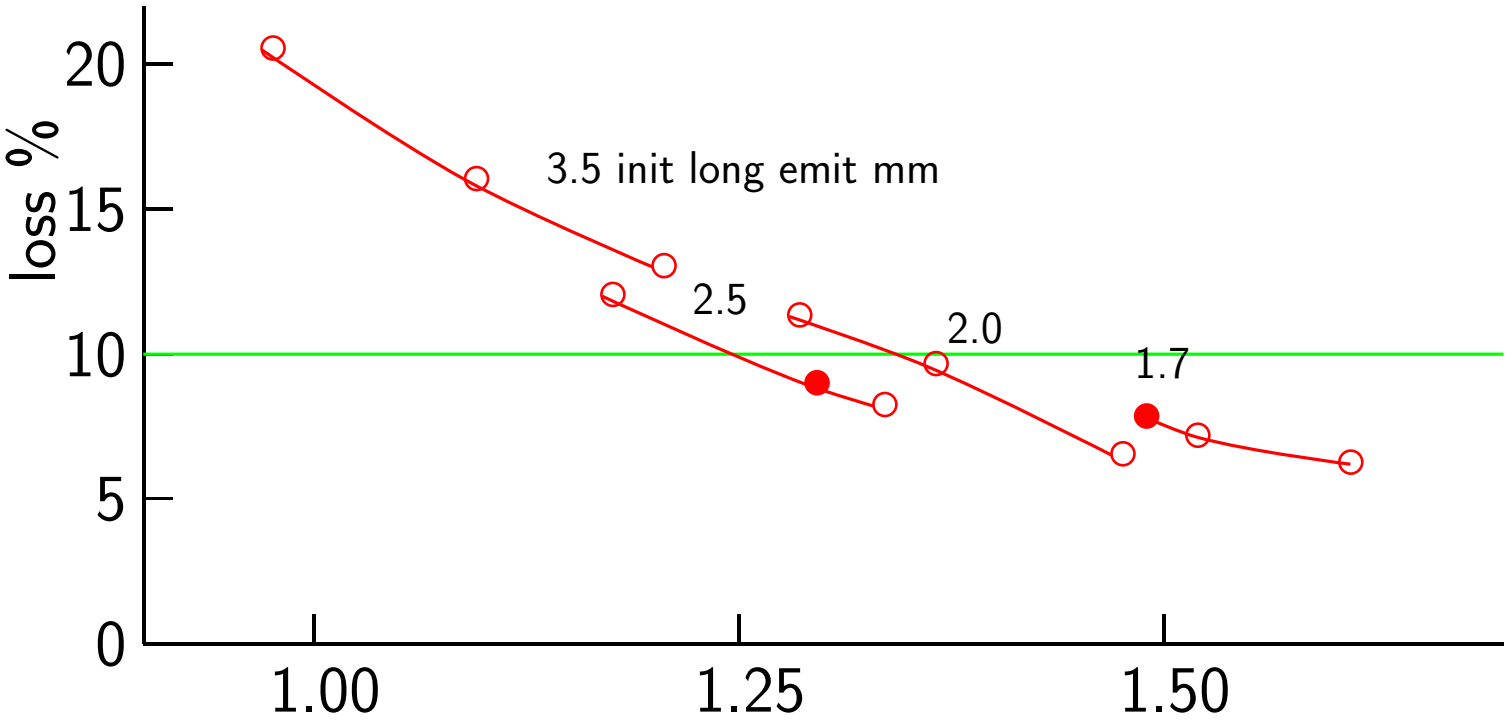
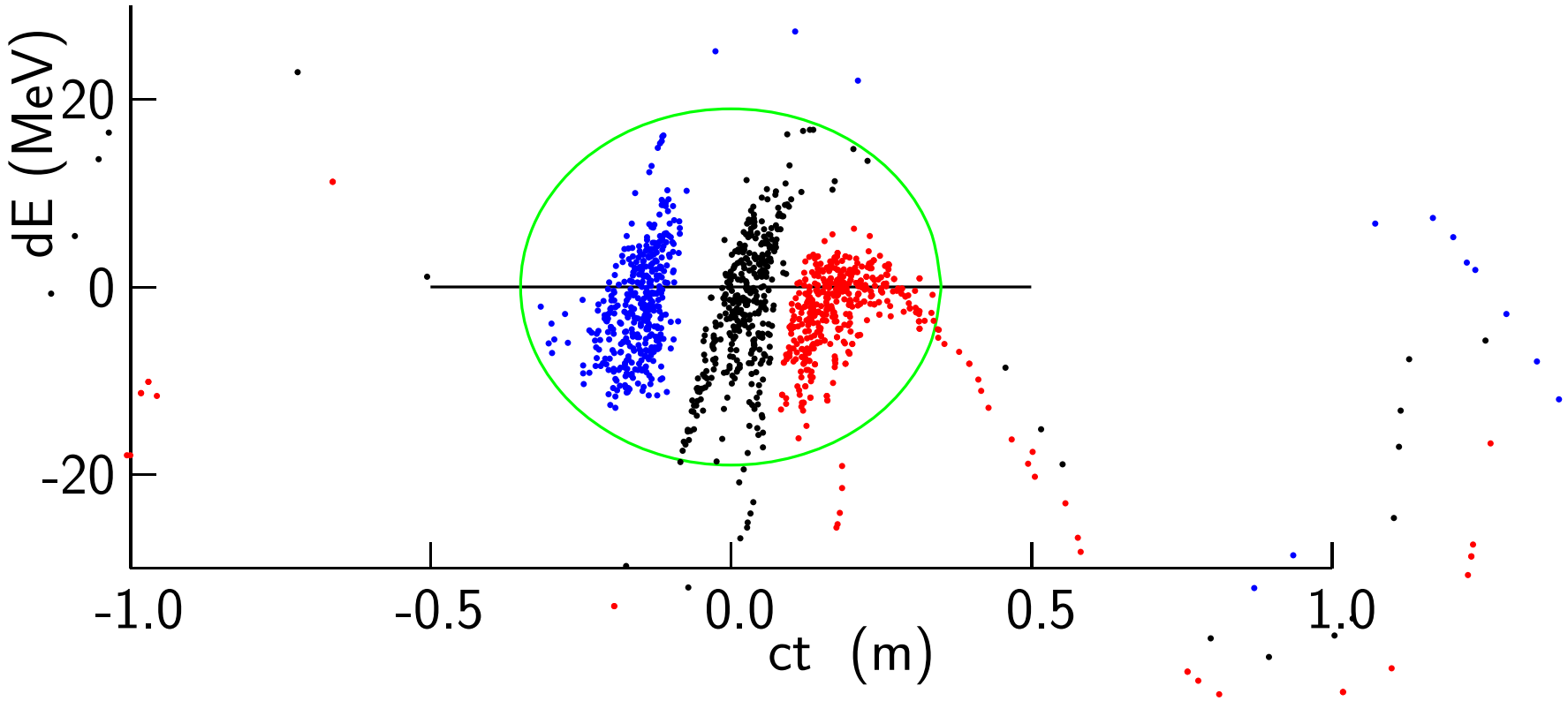
loss vs dilution for different emits

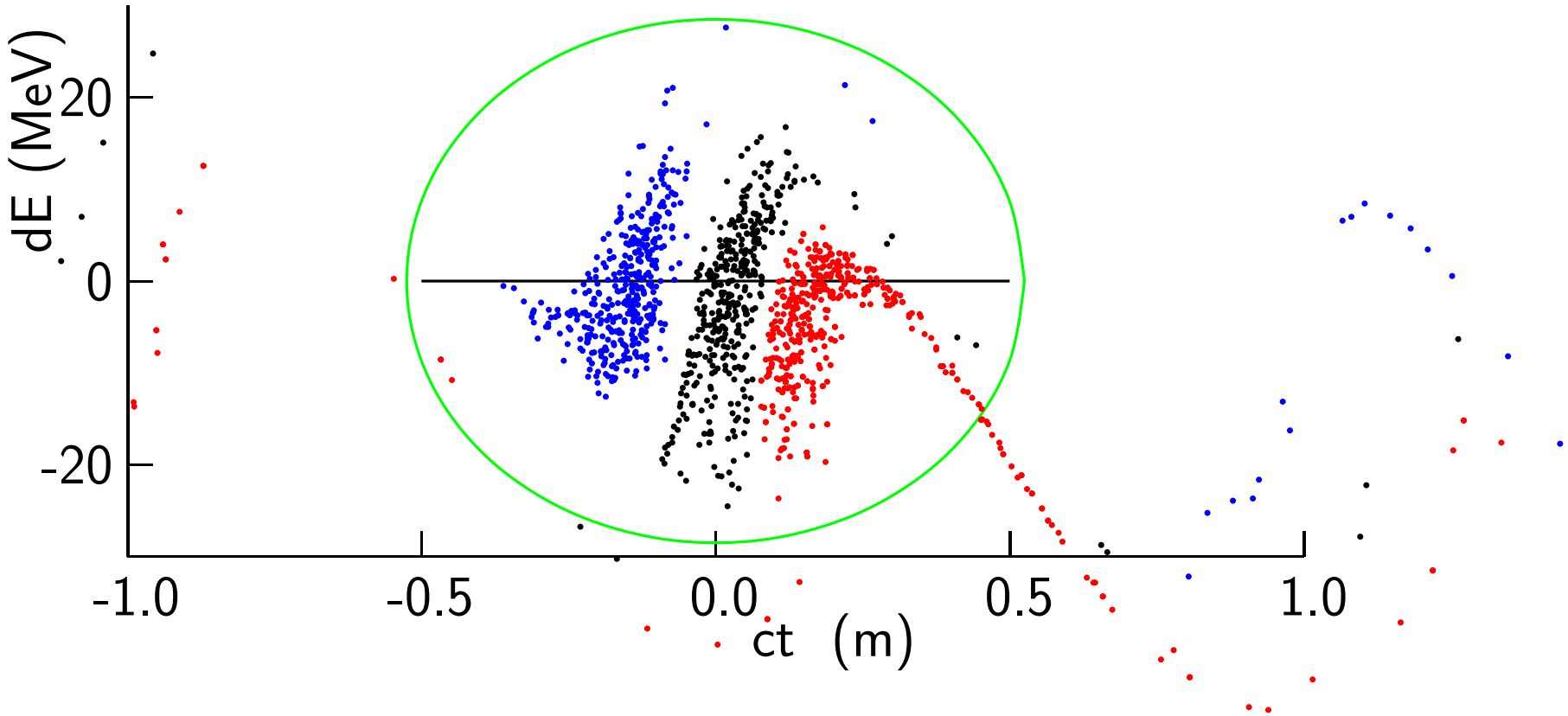


Initial design for 1.7 mm long emit



betaz old new fact transm1 2 1.7 7.58 4.46 92.2

Modified design for 2.5 mm long emit



betaz old new fact transm1 1.2 2.5 9.70 3.88 91.0

Effects of increased longitudinal emittance at merge

With minimal re-optimization:

- $\epsilon_{\|}$ from 1.7 mm to 2.5 47 % mm
  - losses increase from 7.8 to 9 % 1.2%
  - dilution reduced from1.49 to 1.29 13 %
  - long emiitance increased by 28%

- $\epsilon_{\|}$ from 1.7 mm to 3.5 100 % mm
  - losses increase
  - dilution still reduced
  - long emiitance increased