

Comparison between BRN and Bruno (FTOF)

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Outlook

Goal

Comparison of two different productions

Conclusions

Goal

The new fullsim code (for SuperB detector) called BRN is now available. This is the packaged version of Bruno.

A small production of Radiative-Bhabha with the new BRN code has been done.

This production is expected to be equivalent to the previous full-sim production for the SuperB Elba meeting (2011).

The comparison between these two productions is presented here for the FTOF detector.

Elba meeting, 2011

Total number of analyzed events: 19300

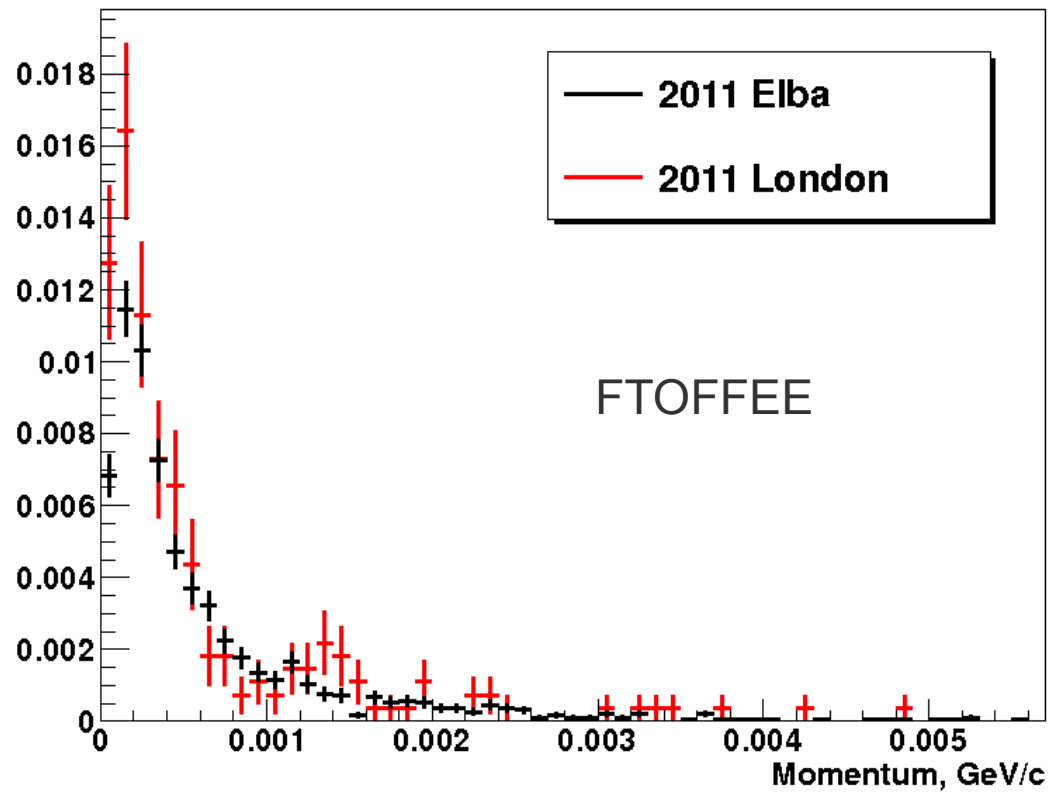
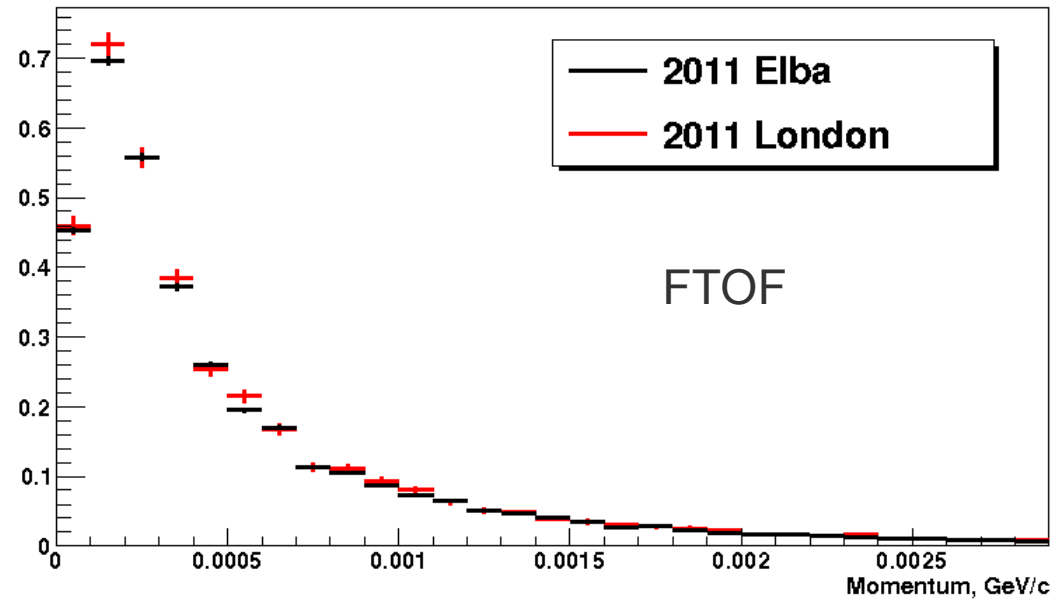
/storage/gpfs_superb/prod/2011_full_Elba_mk8/FullSim/Geometry_CIPE_V00-00-02/RadBhaBha/

London meeting, 2010 (BRN code)

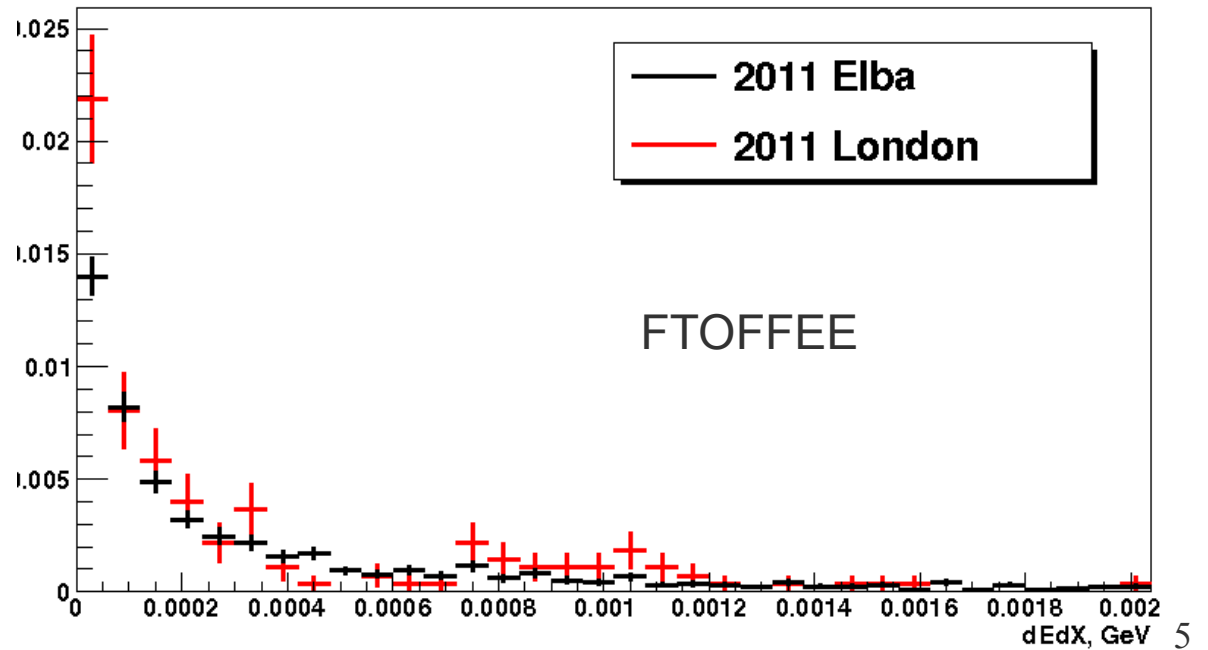
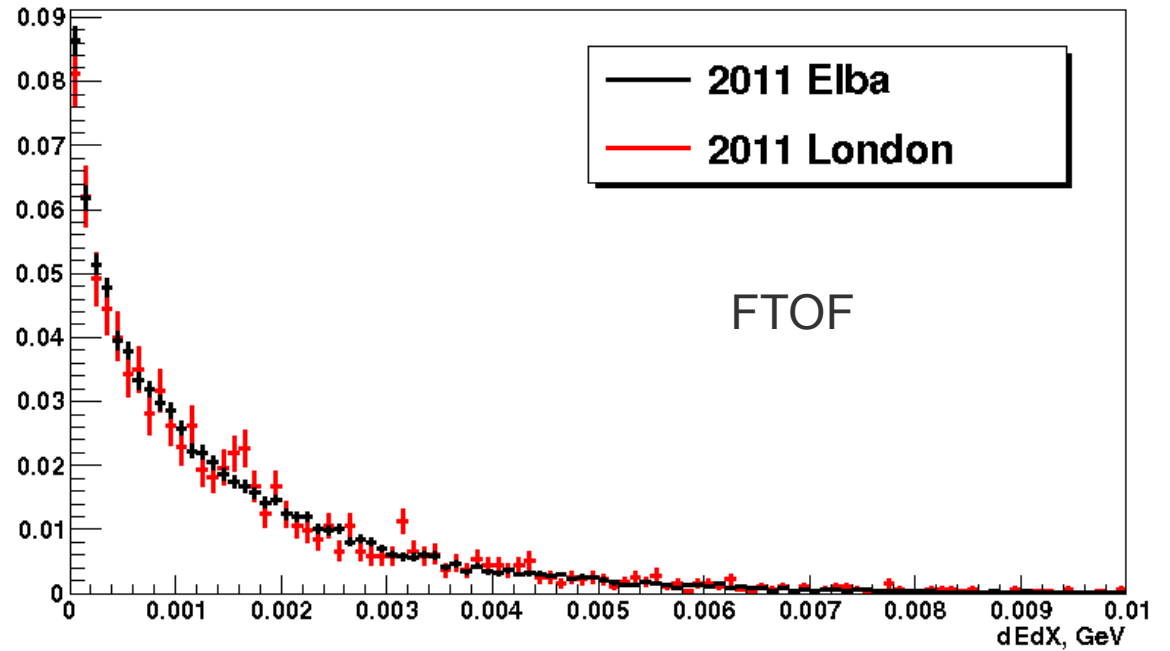
Total number of analyzed events: 2744

/storage/gpfs_superb/prod/2011_full_london_BRN_validation/FullSim/Geometry_CIPE_V00-00-02/RadBhaBha/

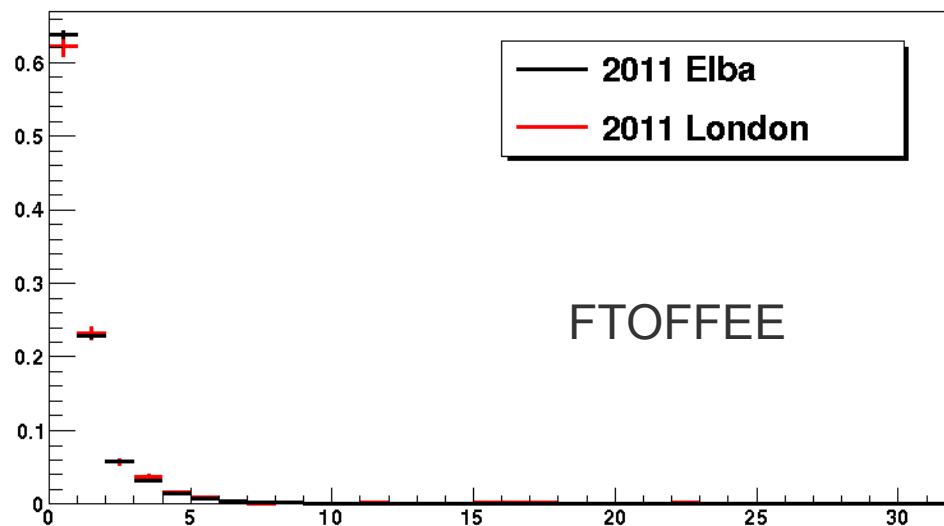
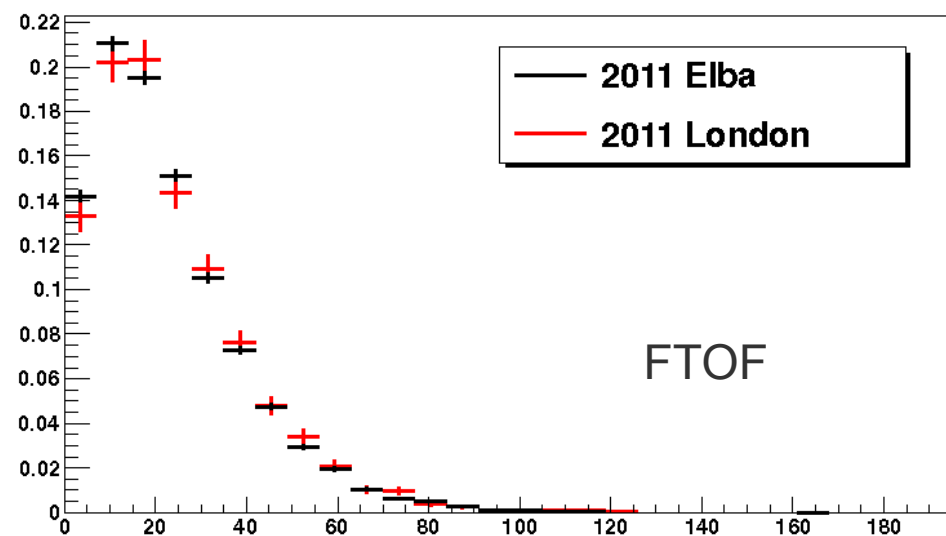
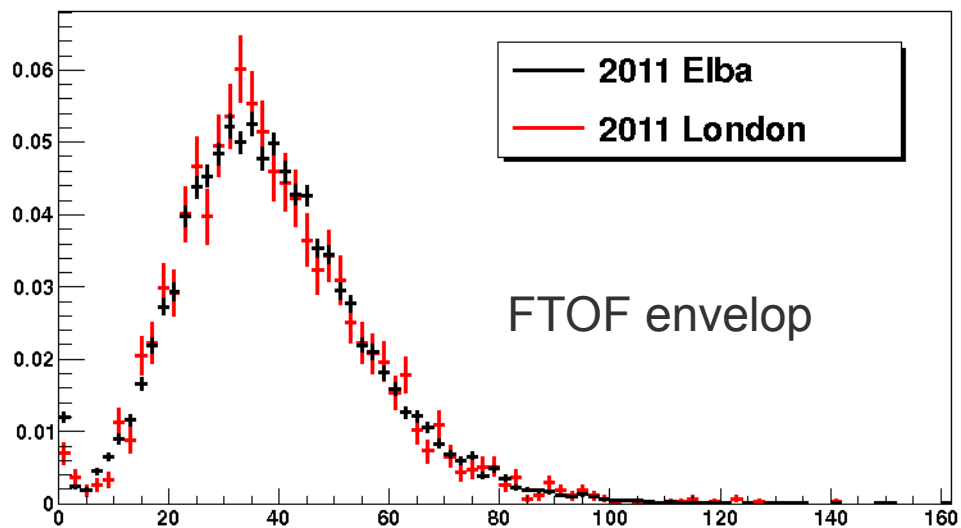
Momentum of the first electron produced in the FTOF and FTOFFEE



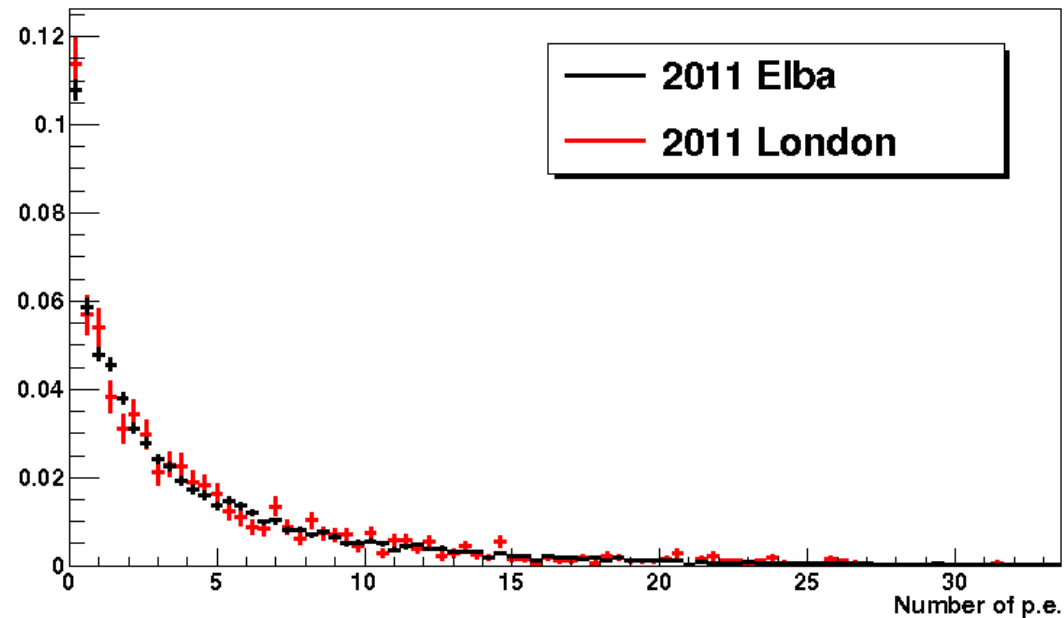
Total dE/dx in the FTOF and FTOFFEE subsystems



Number of hits per event in the FTOF envelop, FTOF itself and FTOFFEE



Number of background photo electrons



Average number of background p.e. Per bunch crossing

2011 London production 3.5 +/- 0.04

2011 Elba production 3.2 +/- 0.01

Number of p.e. estimated using methode proposed by Jerry

(see <http://agenda.infn.it/getFile.py/access?contribId=76&sessionId=14&resId=0&materialId=slides&confId=3352> for more details)

Conclusions

We did not find significant differences between these two productions. However the average number of background p.e. are different by ~6%. This deviation explained by the long tail of the distribution. The truncated mean value is in agreement for both simulations.

Warnings like the example shown below are present in each event

```
WARNING - G4Navigator::ComputeStep()  
  Track stuck, not moving for 10 steps  
  in volume -inner_detector_assembly_PV- at point (-563.8638204,397.6903218,-3694.018744)  
  direction: (-0.3101817921,-0.4437842009,0.8407394595).  
  Potential geometry or navigation problem !  
  Trying pushing it of 9e-10 mm ...
```

Is it harmless or worrying ?

Backup

FTOF and FTOFFEE geometry reminder

