

TRD Simulation with GEANT4

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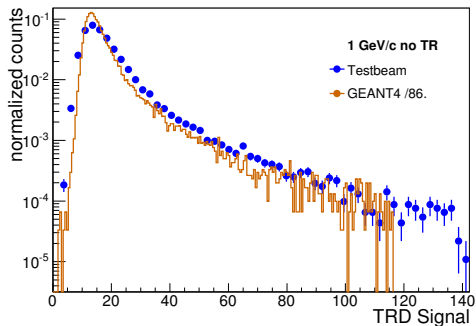
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- Available: Old simulations associated with test beam measurements without radiator
- Additionally: Test beam measurement with TR
- Own detector simulations using ALICE geometry
- Different gain and units - needs scaling between distributions
- Scaled to have peak at same position
- To prevent detector effects:
 - Shut off pair creation
 - Shut off bremsstrahlung
 - Weak p_T cut around original
 - Field left on

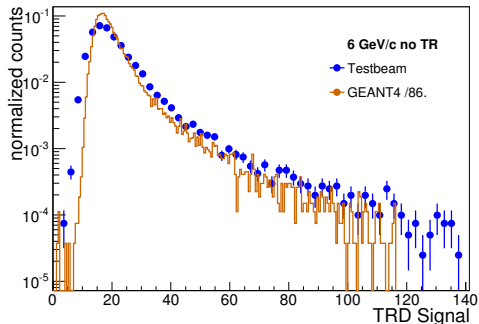


1 GeV/c Pions no TR



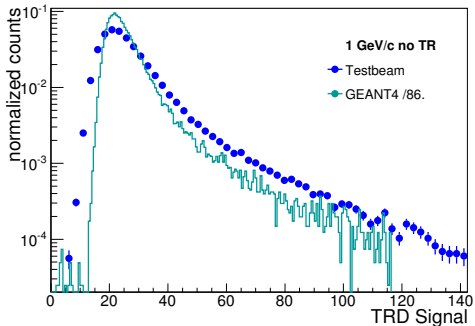
- Simulation slimmer than Testbeam

6 GeV/c Pions no TR

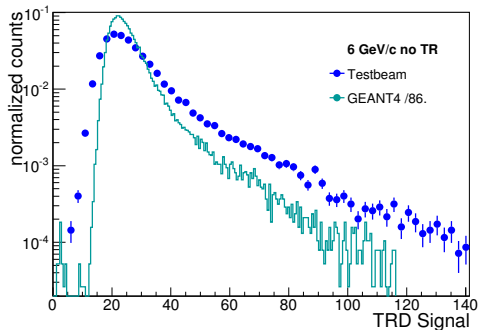


- GEANT4 has very slim distribution

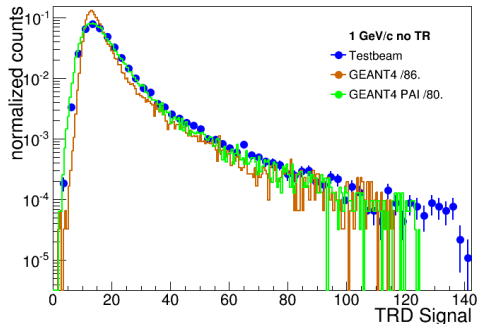
1 GeV/c Electrons no TR



6 GeV/c Electrons no TR

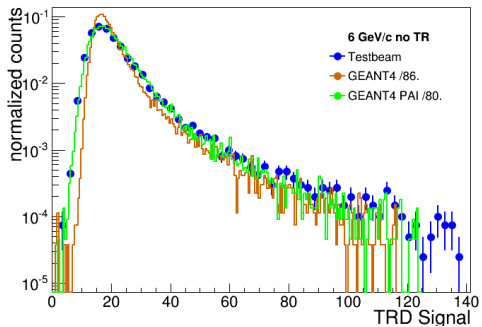


1 GeV/c Pions no TR PAI Model

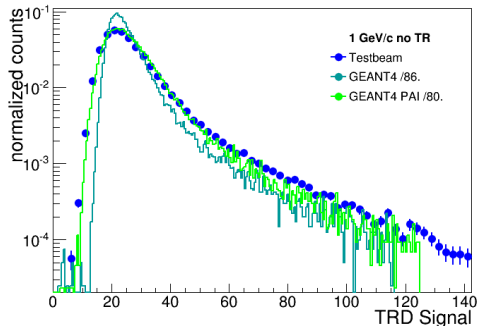


- PAI energy loss model improves width of peak considerably

6 GeV/c Pions no TR PAI

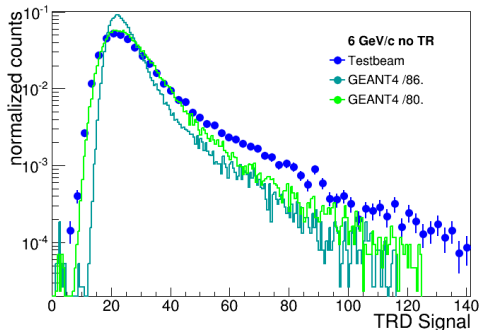


1 GeV/c Electrons no TR



- PAI energy loss model gives slight discrepancies for tail of distribution

6 GeV/c Electrons no TR



- Using the standard configuration of GEANT4, the energy loss peaks are slimmer than in data
- this is alleviated by using the PAI model
- Some discrepancies in the tails remain also with the PAI model

