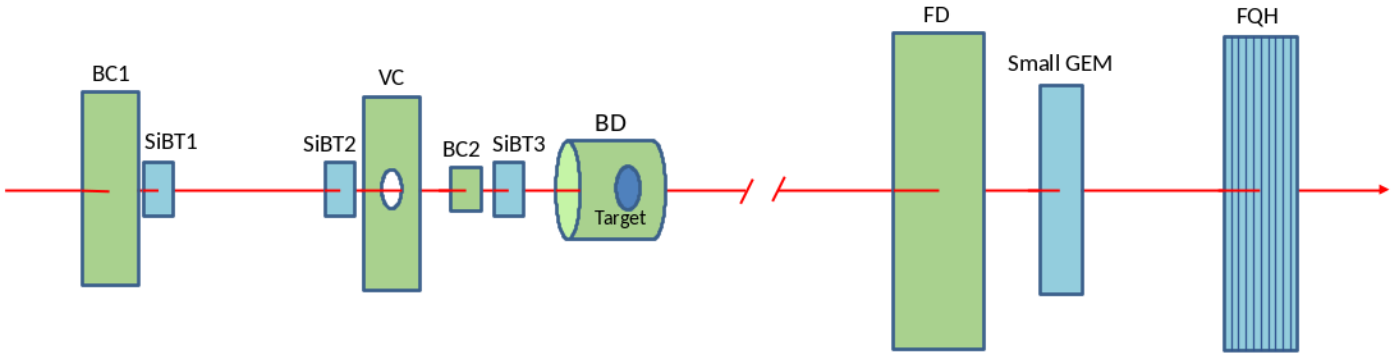
# On the measurement of the Xe+CsI inelastic cross section

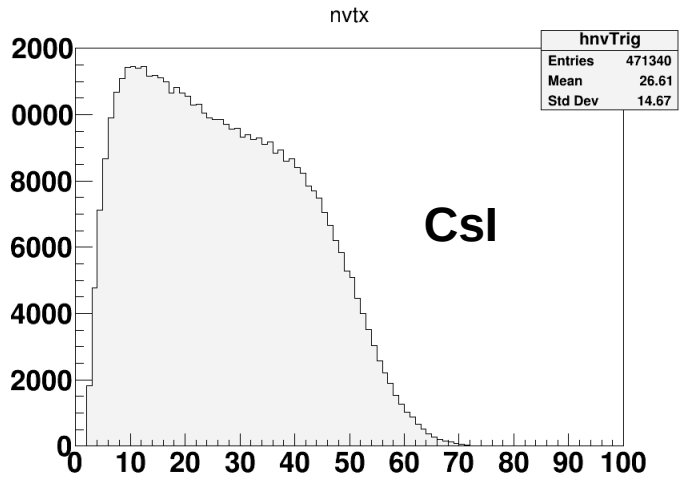
**CsI target: run 7830,  Empty target: runs 7815, 7837, 7849**

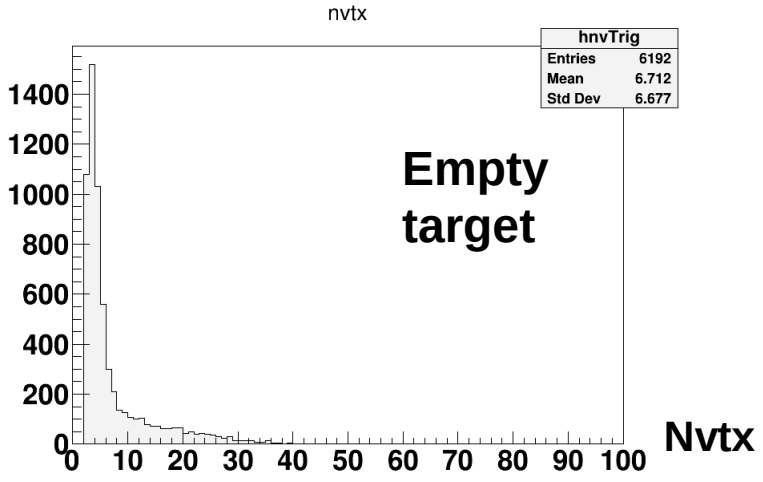
**Ion fluxes after pileup cuts * prescale factor (V.Plotnikov, I.Gabdrahmanov):**

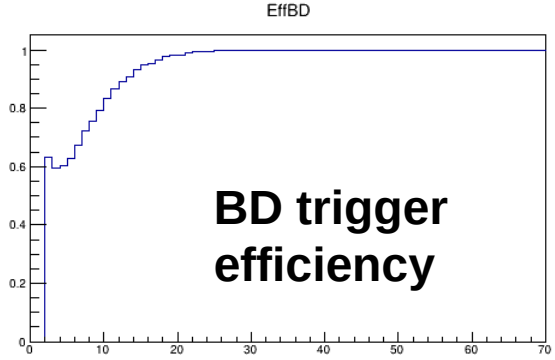
**NBT(CsI,DAQ+b/a filter * prescale+1) = 25159 * 2000 * 0.940**
**NBT(Empty, DAQ+b/a filter * prescale+1) = 34242 * 2000 * 0.936**
**0.940 / 0.936 – flux reduction due to pileup cuts in the data analysis**

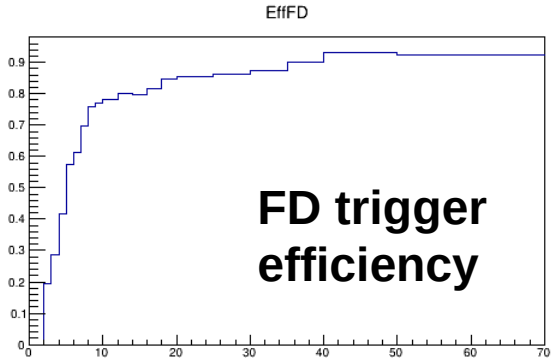
**Ratio of the ion flux in CsI run (7830) to the flux in empty target runs:**
**CorBT = NBT(CsI) / NBT(empty target) = (25159*0.940) / (34242*0.936)**

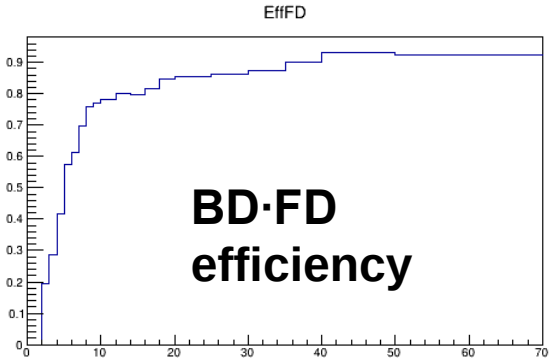





**Number of events with reconstructed vertex: CCT2 trigger, after pileup cuts (A.Zinchenko): Nev(CsI,trig) = 471340 , Nev(Empty,trig) = 6192**

**Number of events after empty target subtraction and trigger efficiency correction:**

$$\sum_{nvtx} [NevCsI(nvtx) - NevEmpty(nvtx)*CorBT] / [EffBD(nvtx) * EffFD(nvtx)] = 639536$$

**Efficiency of vertex reconstruction (nvtx >= 2):**
**Eff(Vtx) = 0.795 (DCM-SMM, A.Zinchenko)**

**% inelastic interactions in the target: $\sum_{nvtx}$ / [Eff(Vtx)*NBT] = 1.70%**

**Nucleus(Target)= $N_A$ * ρ(CsI)=4.51 * L(CsI)=0.175cm / <A(CsI)>=129.9**

**Inelastic Xe+CsI cross sesction:**

**$\sigma_{inel}$ (Xe+CsI) = $\sum_{nvtx}$ / [Eff(vtx)*NBT*Nucleus(target)] = 4650 mb**

**Triggered cross section: 3390 mb (73%)**

**Comparison with models:**
**DCM-SMM inelastic Xe(124) + Cs(133), 3.8 AGeV 4663 mb**

**Urqmd inelastic interactions (A.Zinchenko) 4871 mb**

**PHMD inelastic interactions (V.Kireyeu): 4777 mb**

**→ Agreement between the measurement and the models is within 5%**