

Update of beam test plan for Shintake monitor

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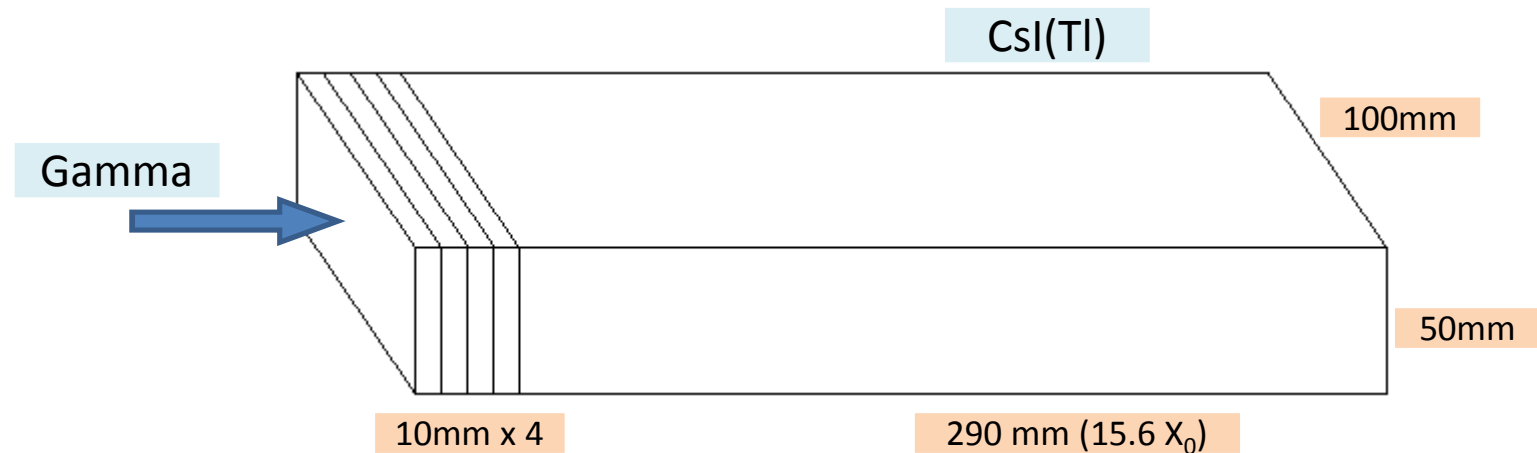
IN2P3-KEK collaboration meeting on ATF2

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Ideas of Shintake Gamma Detector

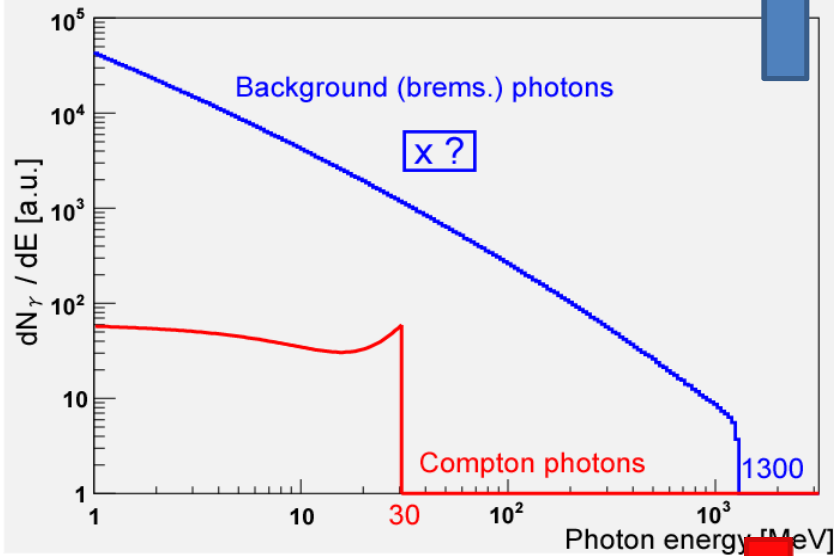
Geometry of Gamma Detector



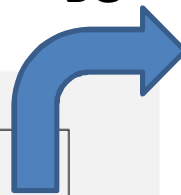
- Multi layer CsI(Tl) scintillator
- Measure energy deposit at each layer by PMTs
--> shower development of incident gamma-ray
- Distinguish between BG/Signal photons by using the difference of shower distribution

Shower development of BG/Signal

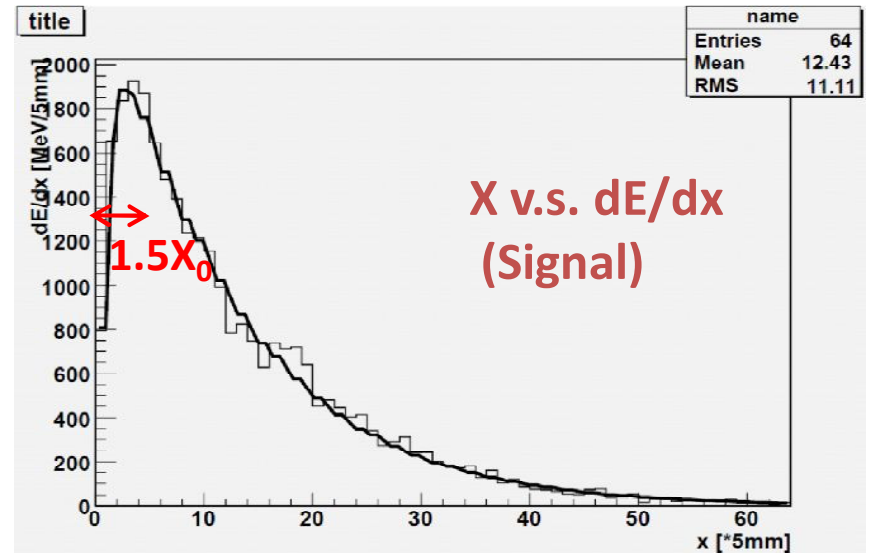
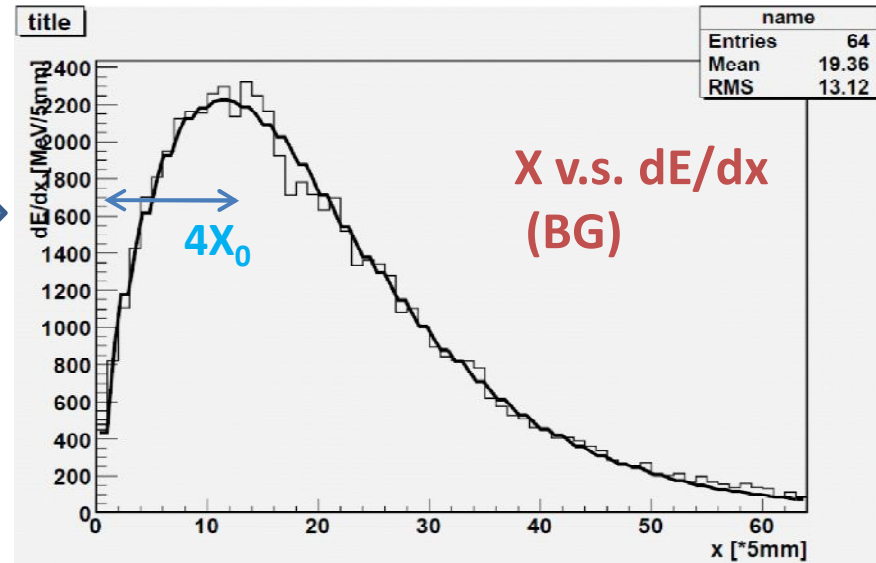
Energy distribution of BG/Signal photons



BG



Signal



Beam test plan

Goals of beam test

- Detector test (**primary our goals**)
 - Confirming basic performance of the new detector
 - Relative gain of PMTs
 - Photon collection efficiency
 - etc...
 - Checking the performance of energy measurement
 - Checking the shower distribution from BG/Signal gamma-rays
 - Comparing with Monte Carlo simulation
- Beam halo measurement
 - To estimate the amount of the realistic BG from electron-pipe collision
- Radiation measurement from the dump
 - To know if the dump radiation is effective to our detector

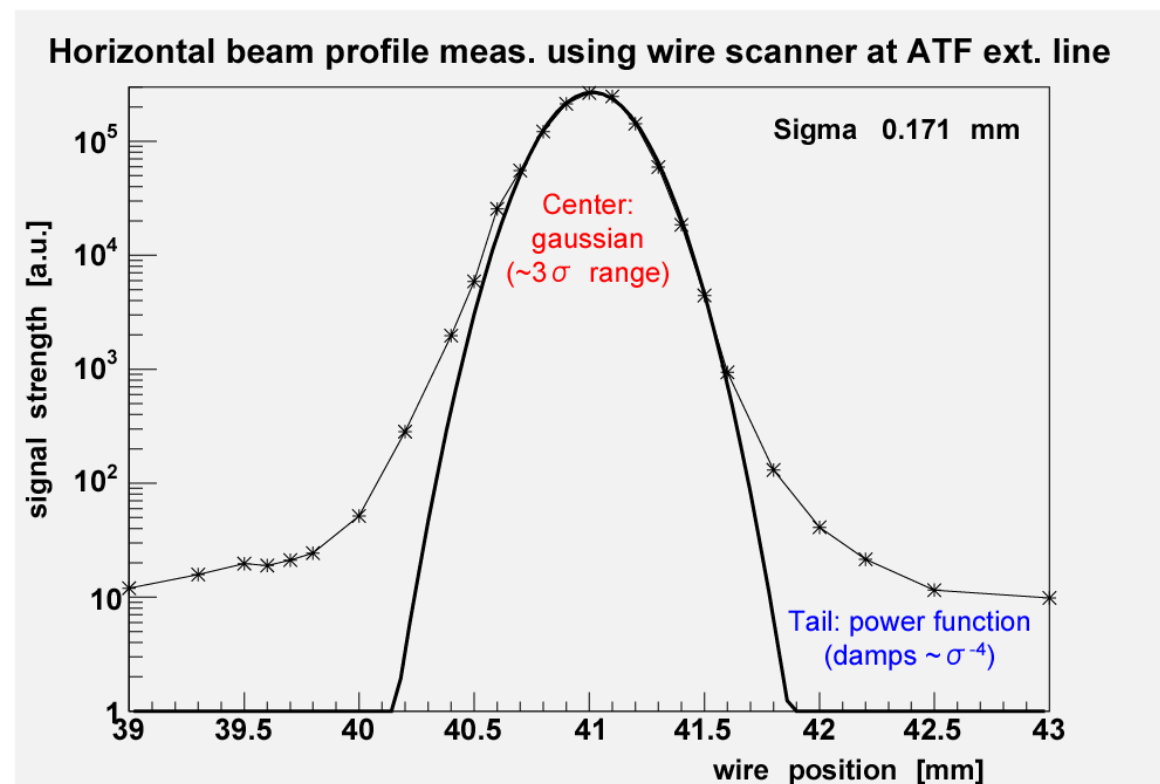
Measure Gamma-rays from the Wire scanner (1)

- Properties of the gamma-rays from the wire scanner are easy to understand and are almost same as those of the **background photons** for the Shintake monitor at ATF2
- Measure shower development and compare it with simulation study

Measure Gamma-rays from the Wire scanner (2)

- Halo distribution measurement

- Beam profile measurement in 2005 →



Measure Gamma-rays from the Laser wire

- Energy spectrum of gamma-rays from the laser wire is same as that of the **signal photons** for the Shintake monitor at ATF2
- Measure shower development and estimate performance of our new detector

Measure Radiation from the Dump

- We will set up Gamma Detector near dump at ATF2
- Radiation from the dump can be background for the Shintake monitor
- To estimate it, we are going to measure radiation from the ATF dump

Schedule

Schedule

- Beam time request
 - > one shift a week (11/12-12/21)
 - 11/12-16 : detector check, wire scanner
 - 11/26-30 : wire scanner
 - 12/03-07 : laser wire
 - 12/10-14 : laser wire
 - 12/17-21 : radiation from the dump