

INFO GENERALI

④ COORDINATA z VERTICE: DISTR. NORM. $\rightarrow \sigma = 5.3 \text{ cm}$

④ COORDINATE x, y VERTICE: DISTR. NORM. $\rightarrow \sigma = 0.01 \text{ cm}$

\rightarrow RAGGIO RING

④ BEAM PIPE BE: $R = 3 \text{ cm}$ $W = 0.08 \text{ cm}$

④ PMMA LAYER: $R = 4 \text{ cm}$ $W = 0.02 \text{ cm}$

④ SECOND LAYER: $R = 7 \text{ cm}$ $W = 0.02 \text{ cm}$

④ z RIVELATOM: $[-13.5 < z < 13.5] \text{ cm}$

\rightarrow PER PARTICELLE PRODOTTE IN $- \sigma \leq z_{\text{vert}} \leq \sigma$ L'ACCETTAZIONE È $-1 < \eta < 1$

④ SMearing DEL PUNTO D'IMPATTO: $(\mu_z = 0, \sigma_z = 0.012 \text{ cm})$
 $(\mu_{rq} = 0, \sigma_{rq} = 0.003 \text{ cm})$

COSE DA FARE:

SIMULAZIONE: \forall EVENTO

1. GENERAZIONE GAUSSIANA POS. VERT.
 $\rightarrow z_{\text{vert}} = \text{gRandom} \rightarrow \text{Gaus}(0., 5.3)$ // vert. pos. in cm
 $x_{\text{vert}} = \text{gRandom} \rightarrow \text{Gaus}(0., 0.1)$
 $y_{\text{vert}} = \dots$
2. GENERAZIONE DELLA ROUTE RICATA DI PARTICELLE CAM CHE
 $\rightarrow \text{mult} = (\text{gRandom}) \sim$ CON CONTENUTO SELEZIONATO AL RINTIERE
3. GENERAZIONE DIREZIONE ASSOCIATA A OGNI PARTICELLA
(uniforme in azimuth - transverse - distribution elongata in pseudo rapidità)
4. TRASPORTO DELLE PARTICELLE
 - INTERSEZIONE BEAM PIPE
 - SCATTERING MULTIPLO (CON COMANDO ON/OFF)
 - POSIZIONE IMPATTO SUI INVELOCI

RICOSTRUZIONE

1. SPREADING SU PUNTI INTERSEZIONE \rightarrow "CREAZIONE" PUNTO D'IMPATTO
2. PUNTI SPURIA + PARTICELLE BASSO p
3. RICOSTRUZIONE VERTEICE
4. PLOT FINALE \rightarrow FUNZIONE PIGN
 - $z_{\text{REL}} - z_{\text{TIME}}$ DISTR.
 - IN SENS.
 - EFFICIENZA

--- IGNORE PAGE ---

Event (class) : TObject

+ VERTEX
+ PARTICLE (TClonArray)

Particella (class) : TObject *

+ DIRECTION
- UPDATE DIRECTION()

TClonArray PARTICLE = TClonArray ("Particella", n)

* IN ITS CONSTRUCTION A METHOD TO GENERATE DIRECTION BASED ON
DIFFERENT DISTRIBUTION SHOULD BE SET UP

Random Generator (class)

CLASS TO GENERATE NUMBERS ACCORDING TO
ANY GIVEN DISTRIBUTION

MAIN CLASSES

SITUATION

- TIME_NAME (const char *)
- CONFIG_FILE (" " ")
- + RUN_SIMULATION()
- + output

EVENT : Tobject

- VERTEX (struct ?)
- PART_ARRAY (TCloneArray)
- + PART_GENERATION(OPTION)
- + PART_TRANSFORM(DETECTOR)



RANDOM VERTEX INIT. IN CONSTRUCTION

DETECTOR

(for cylinders only)

- RADIUS
- WIDTH
- MULTIPLE_SCATTERING (bool)

RANDOM DISTRIBUTION GENERATOR ???

needed? → look up on ROOT documentation to see if there are better solutions

PARTICLE

- PHI
 - ETA / THETA
- } DIRECTION OF MOTION

INTERSECTION - POINT

POINT : Tobject (mainly for intersection points)

- x
 - y
 - z
- + STREAMING()



STORED IN TCloneArray (NO NEED TO SPECIFY TYPES WHEN PASSING TO TBRANCHES)

VERTEX : Tobject

- x, y, z

- + VERTEX_REC (TBranch 1, 2, 3)
- ± RETA (PUNTO 1, PUNTO 2)

→ complete (can cut off delay)

PROTECTED

RECONSTRUCTION

- CONFIG_FILE
- TREE_NAME_REC
- TREE_NAME_SUM

Run_

- + RECONSTRUCTION ()
 - + CONFRONTO () [time - trec]
 - + RETURN ()
 - + EFFICIENCY ()
-
- + ADD BACKGROUND ()

GRAFIA DEL
(con Frame)

CONFIG_FILE

→ How MANY DETECTORS (beam pipe included) int

DETECTOR 1

RADIUS double

WIDTH double

MULT-SCATT. bool

DETECTOR 2

...