STDMAKE

A utility to make beam files for GEANT in Standard HEP Event format.

R.Raja, 26-Oct-2001

- RCP driven- stdmake.rcp and stdgeom.rcp
- All files are .F files as in CERNLIB
- Building program is easy. gmake lib will compile and build all .F files; gmake bin will build executable.
- Will generate beam with Gaussian or Uniform distributions.
- Beam axis along z direction. x and y are transverse during generation.
- Can specify a rotation matrix (in Geant format) that will rotate beam in the appropriate direction.
- Central vertex and beam momenta specifiable.
- All spreads specifiable.
- In addition to STDHEP output, will write NTUPLE that can be used for quick analysis.

```
      PROGRAM STDMAKE
C-----------------------------------------------------------------------
C-
C-   Purpose and Methods : MAIN program for
C-          "MAKES STDHEP COMPATIBLE BEAM FILES WITH KNOWN EMITTANCE"
C-
C-   Created  12-OCT-2001   Rajendran Raja
C-
C-----------------------------------------------------------------------
      IMPLICIT NONE
      LOGICAL LNKINC
      DATA LNKINC/.TRUE./
C-----------------------------------------------------------------------
C
      CALL STDM_INI    !initialize STDMAKE
      CALL STDM_GEN    !generate events
      CALL STDM_FIN    !finish up
C
      STOP
      END
```

```
\START    STDMAKE_RCP
\SIZE         71        53

!------------------------------------------------------------------------
!    Name:       STDMAKE.RCP
!    Package:
!    Library:
!    Purpose:    CONTROL STDMAKE
!    Version
!    Created:    23-APR-1998   Rajendran Raja
!------------------------------------------------------------------------
! ANALYSIS CONTROL
!------------------------------------------------------------------------
STDHEP_RUN_NO 2000  !Run number
WRITE_NTUPLE T      !produce Ntuple of events
LIST_EVTS  0  !will list 1st n events
NUMBER_EVTS   10 !Number of events to Generate
NUMBER_TRACKS 3000  !Average number of tracks per event
GAUSSIAN            F !If false will generate uniform distribution
SIGMA_TRACKS  10.0  !1 standard devn variation on number of
tracks/event
!
SIGMA_X        1.0   !x position variation (cm)
SIGMA_Y        1.0   !y position variation
SIGMA_Z        10.0  !z position variation (z along beam, y vertical)
!
SIGMA_PX       32.0E-3 !variation in px
SIGMA_PY       32.0E-3 !variation in py
SIGMA_E        18.0E-3  !variation in energy
!
STDM_ID           13   !mu- is a lepton +13, mu+ is an antilepton -13
!
\ARRAY AVERAGE_VERTEX
 0.0 0.0 500.  !VERTEX POSITION OF CENTROID
\END
!
\ARRAY AVERAGE_MOMENTUM
 0.0 0.0 0.225  !MOMENTUM 3 VECTOR OF CENTROID
\END
!
\STOP    !   STDMAKE_RCP
```

```
\START    STDGEOM_RCP
\SIZE         71        53

!------------------------------------------------------------------------
!    Name:       STDGEOM.RCP
!    Package:
!    Library:
!    Purpose:   Do rotations in stdmake
!    Version
!    Created:    23-APR-1998   Rajendran Raja
!------------------------------------------------------------------------
\ARRAY ROTATION_MATRICES  !will rotate beam by this matrix
   1   180.0000   0.0000  90.0000   90.0000  90.0000    0.0000
!z axis along x
\END
\ARRAY VOLUME_LIST
 'MOTH'
 'DOTT'   !FOR DOING ROTATIONS
 \END

\ARRAY ACT_MOTH
 'VOLU' 'BOX ' 16  3       100. 100. 100.
\END
!

\ARRAY ACT_DOTT
 'VOLU' 'BOX ' 16  3       100. 100. 100.
 'POS '  1  'MOTH'      0. 0. 0.   1  'ONLY'
\END
!
\ARRAY MATERIAL_LIST
\END
\ARRAY MEDIA_LIST
\END
\ARRAY DETECTOR_LIST
\END
\STOP    !   STDGEOM_RCP
```

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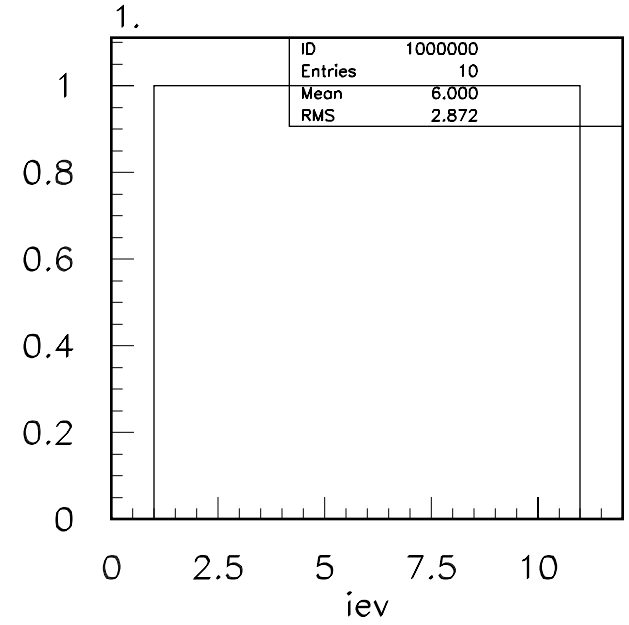

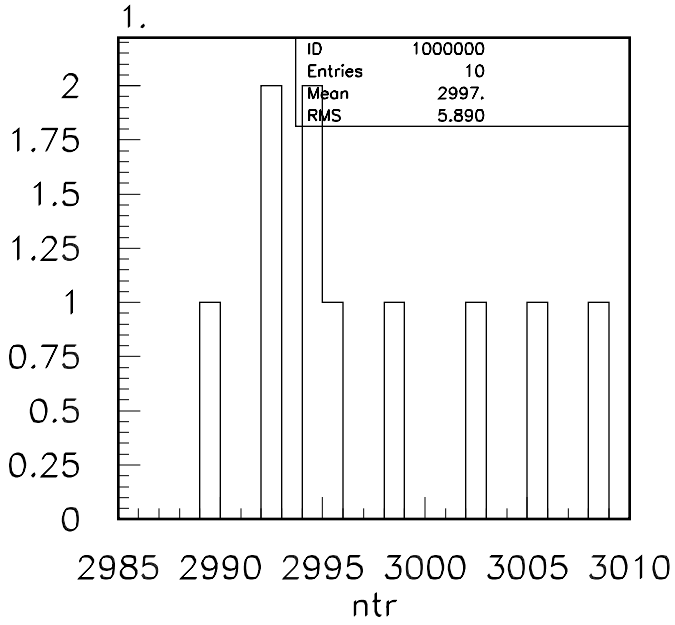

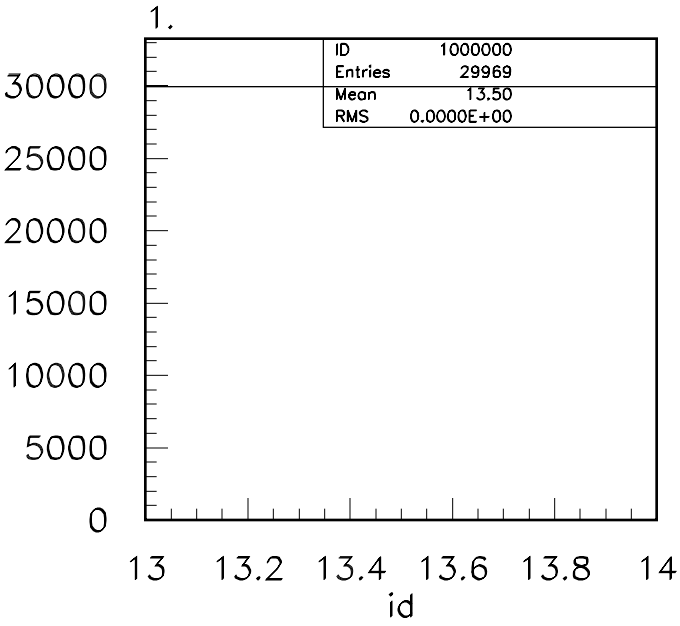

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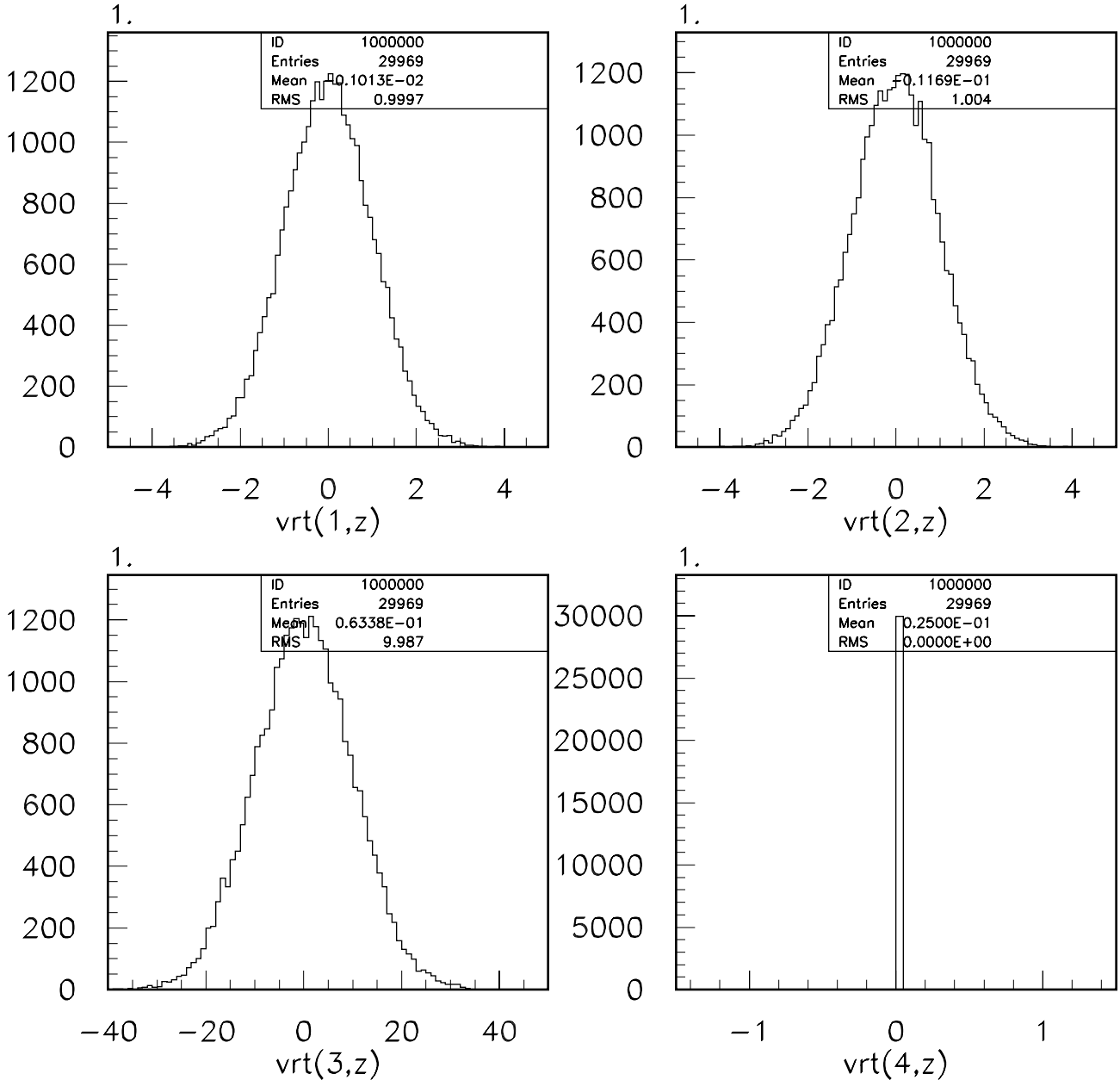

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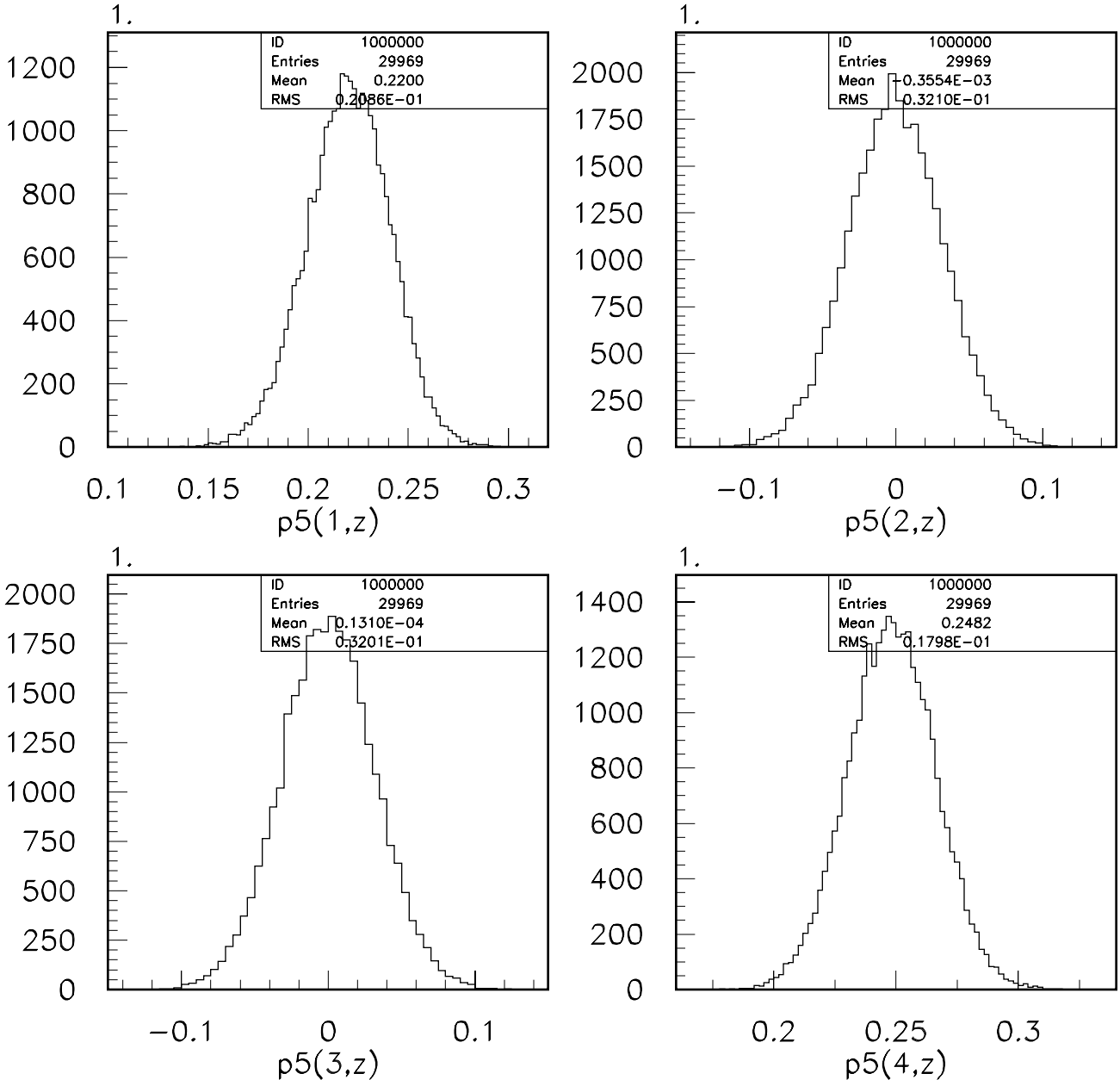

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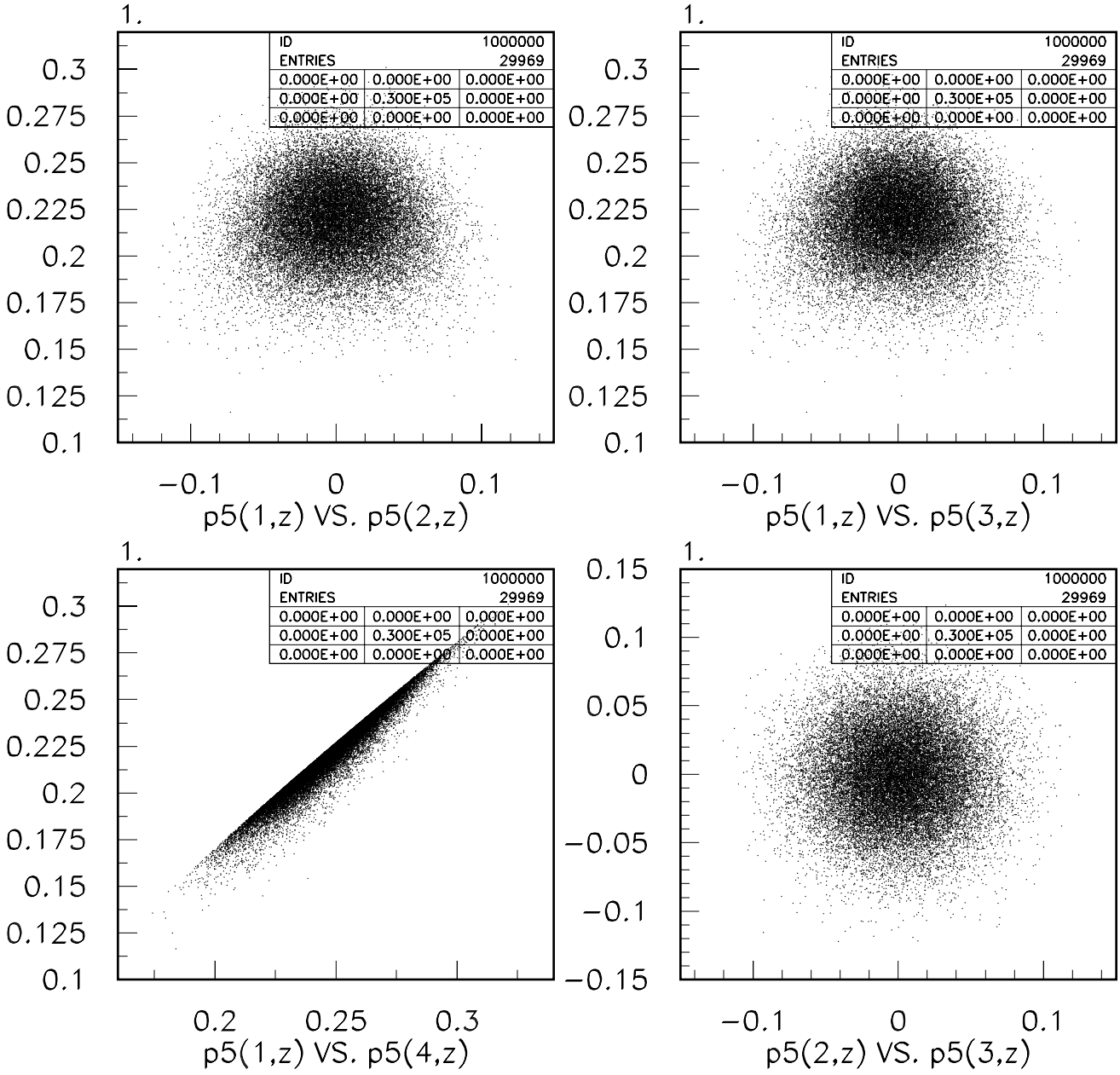

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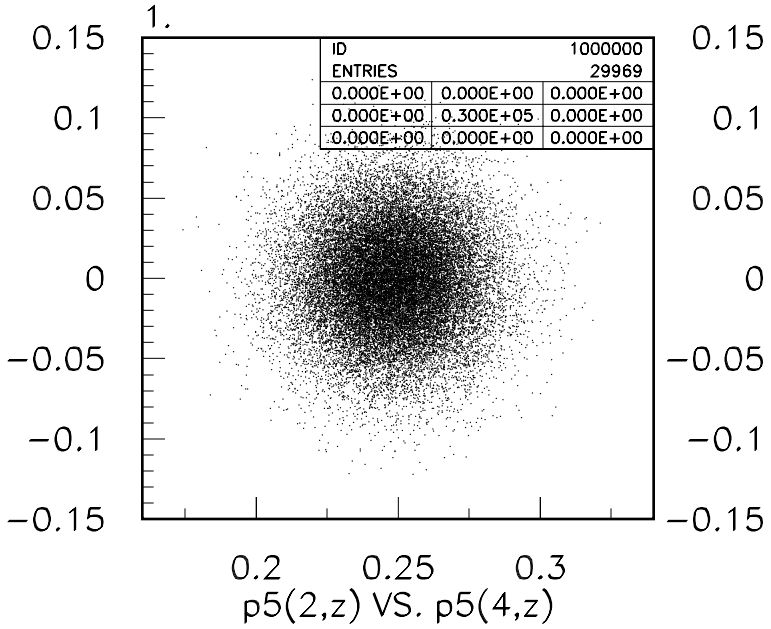

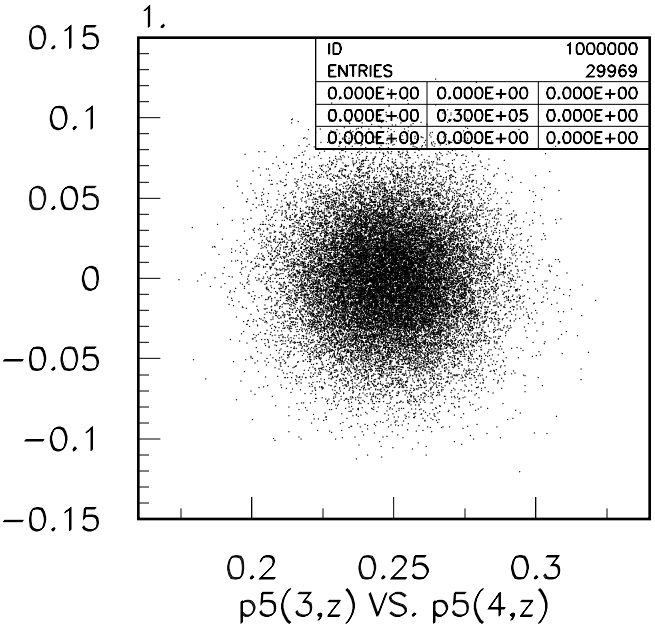

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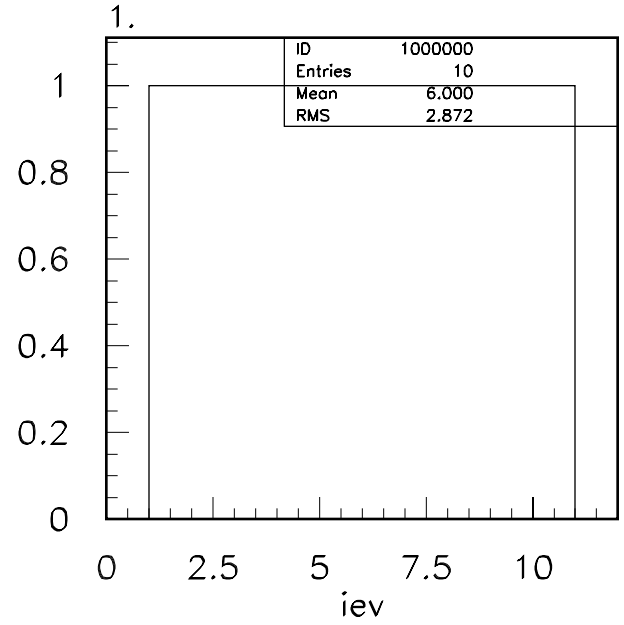

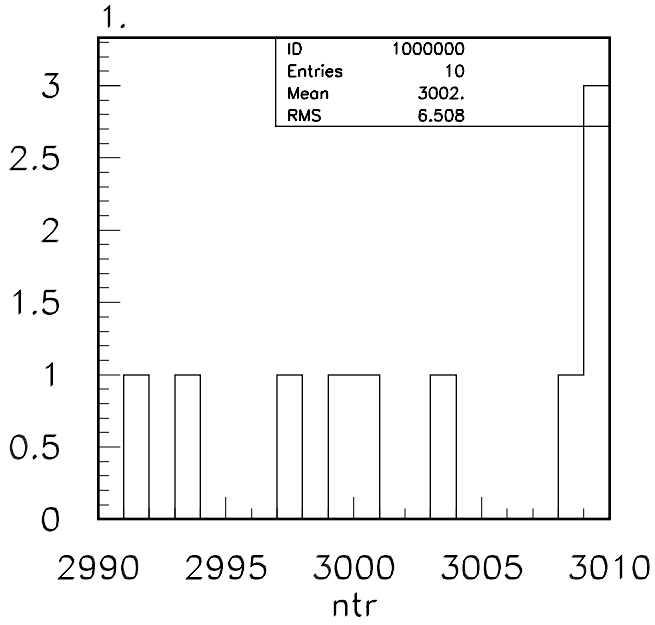

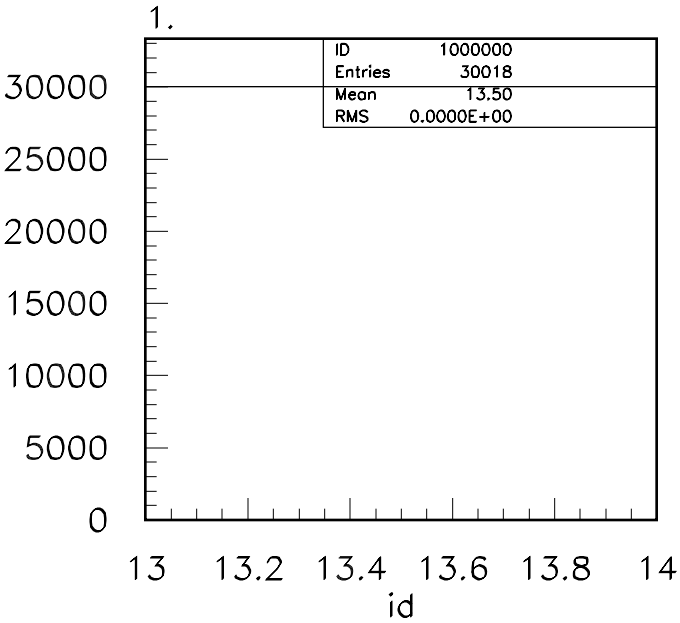

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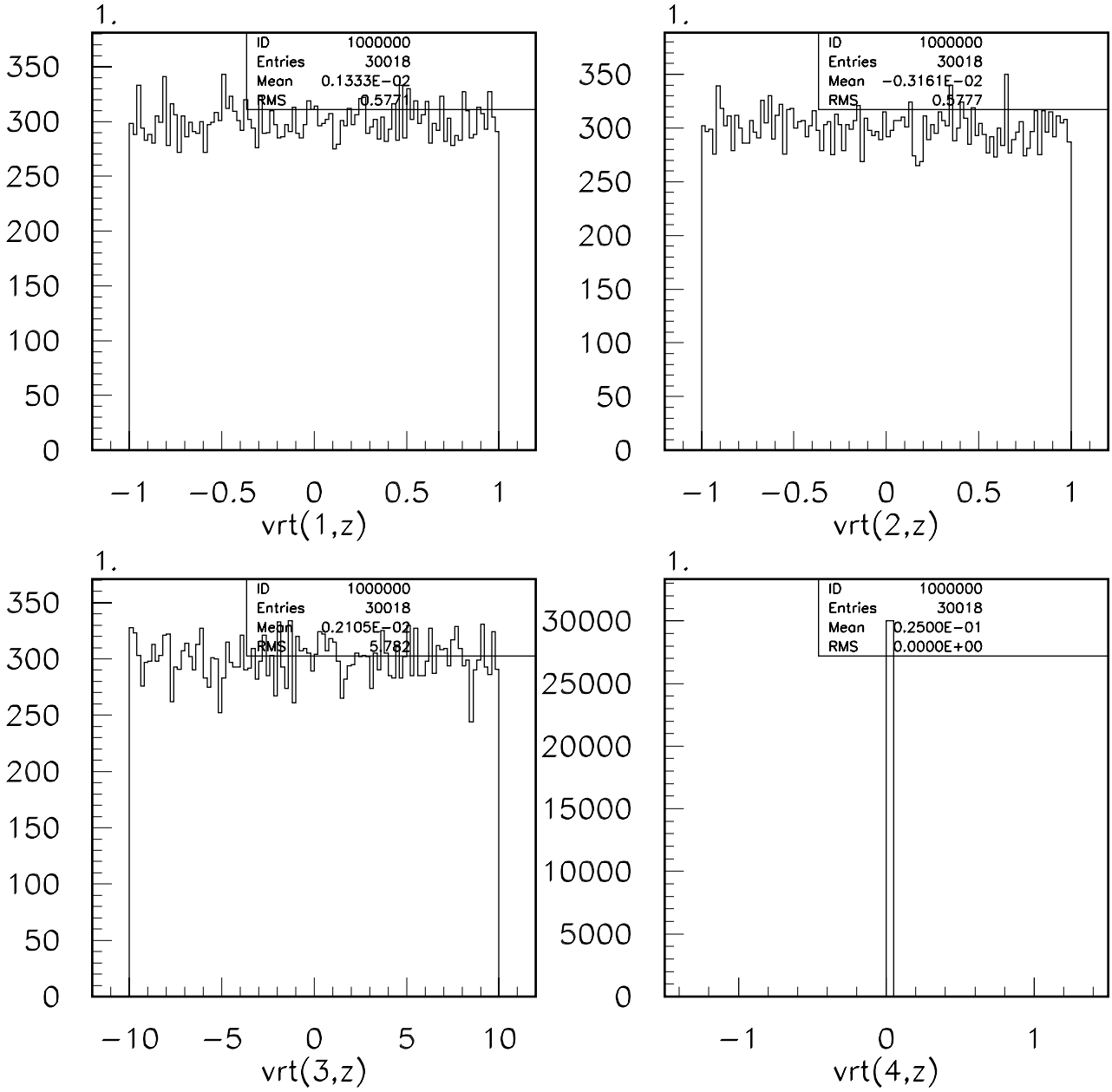

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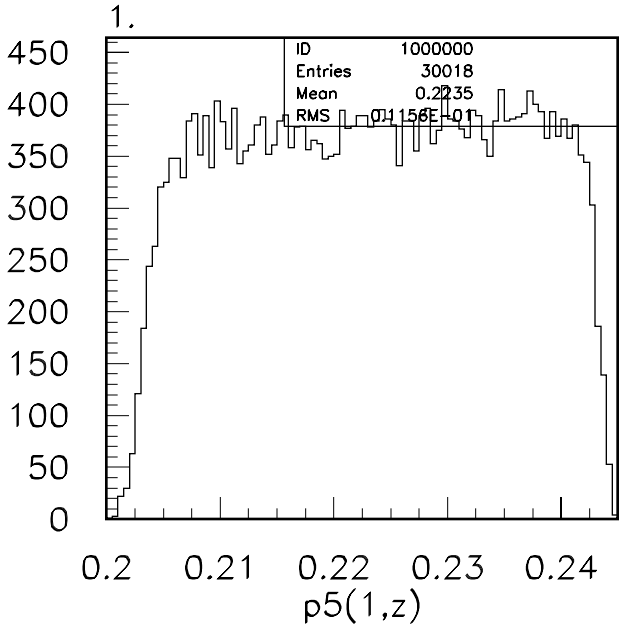

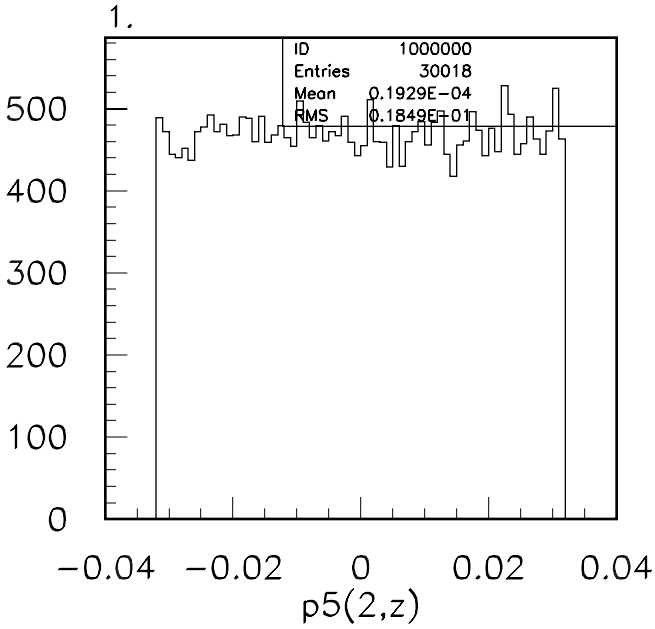

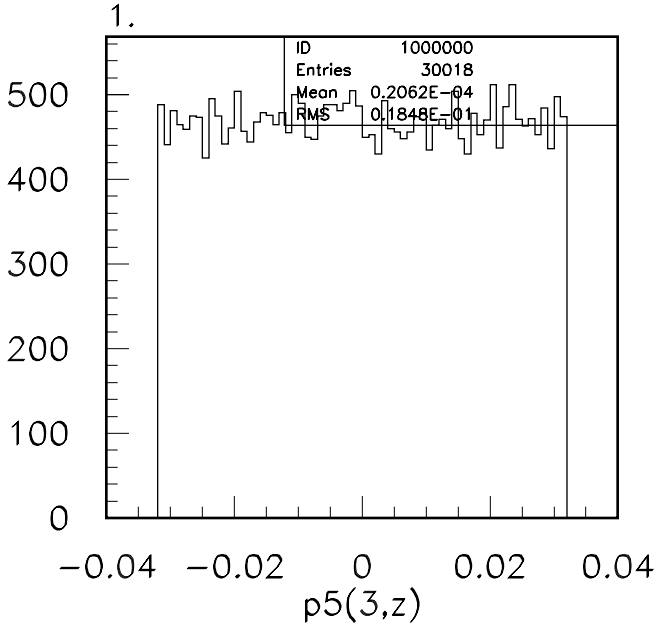

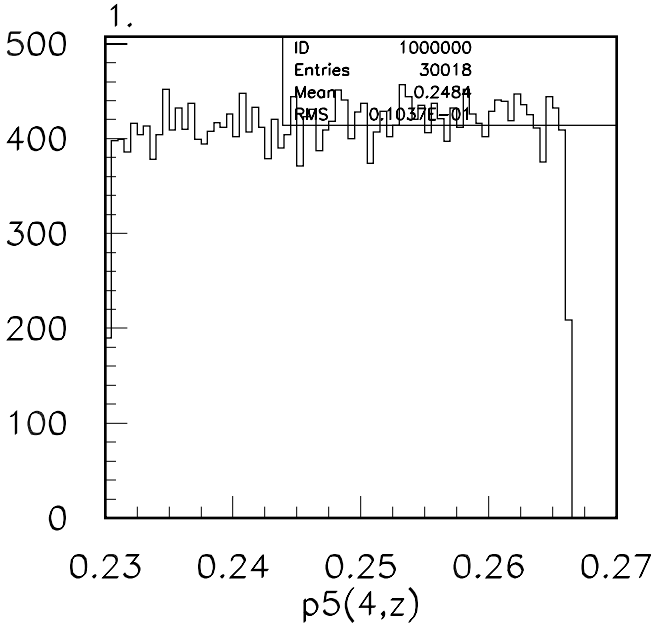

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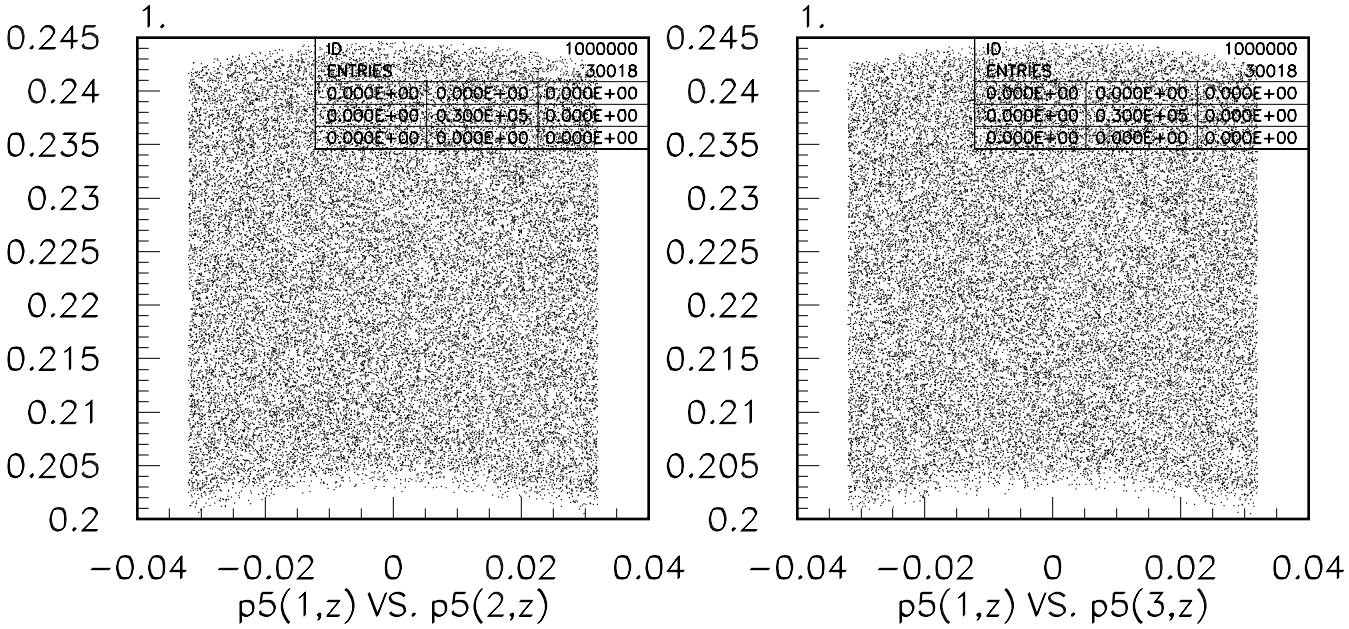

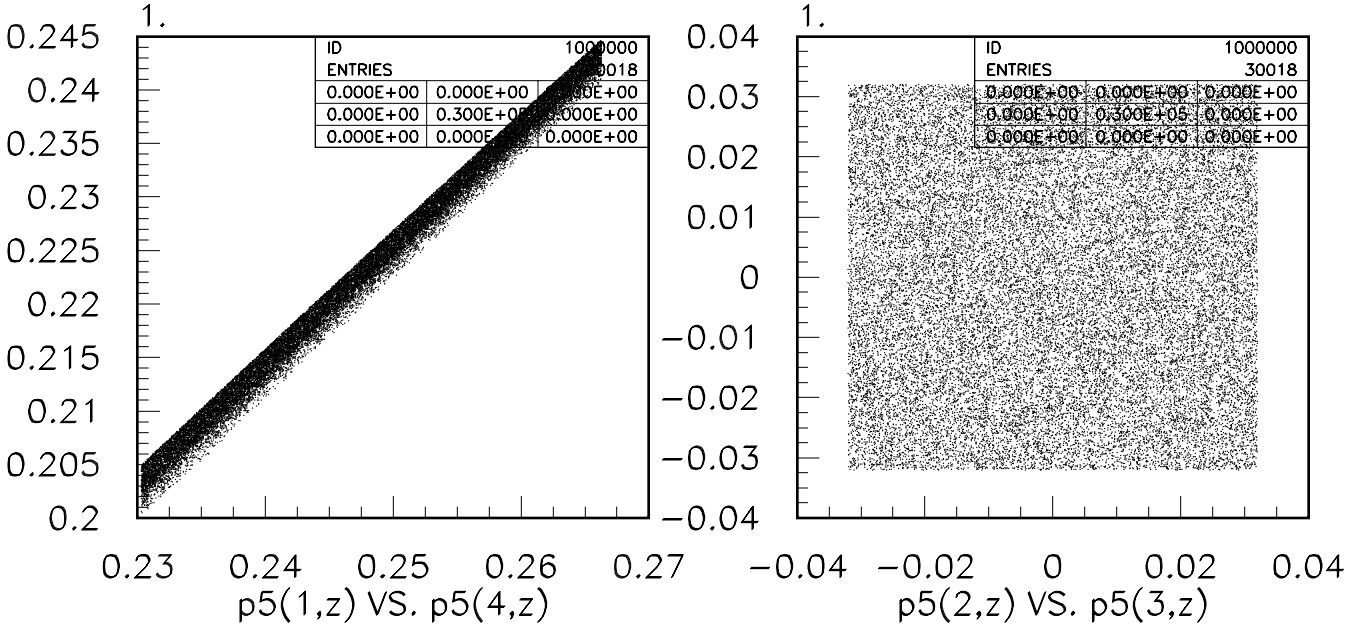
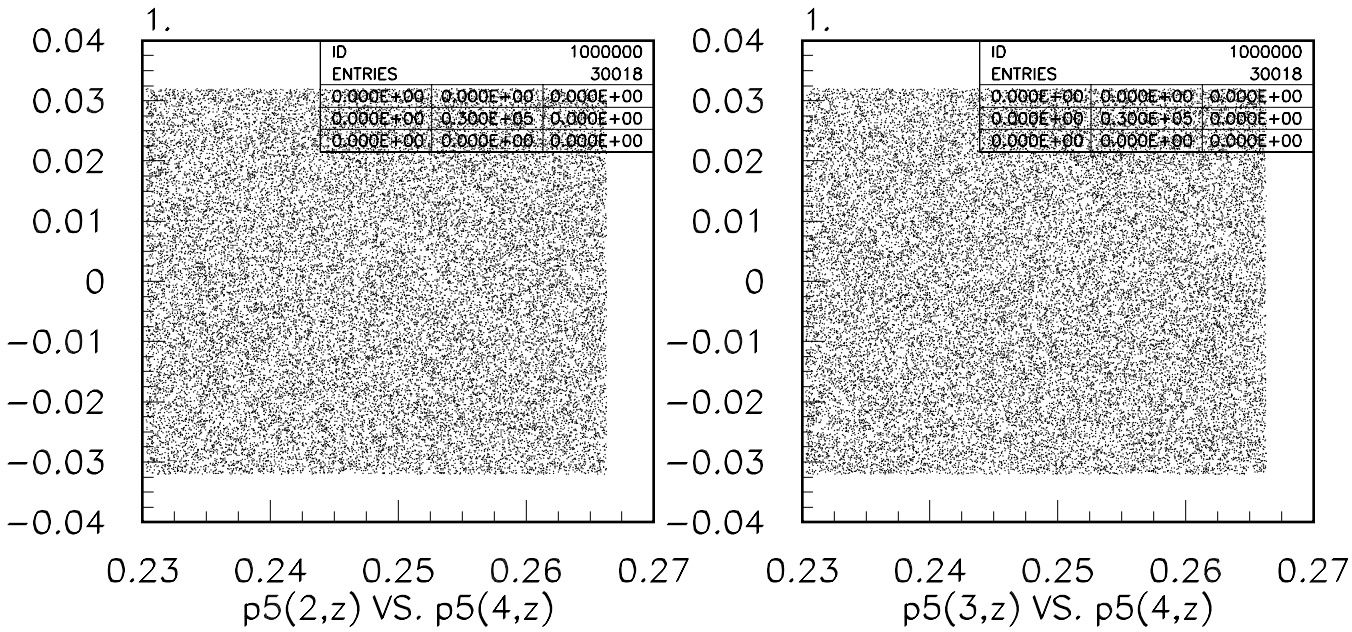
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