Olsson

JADE Computer Note 25

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E. Elsen

J. Olsson

Reading and Writing of Real and MTC-event data

Since MTC events are generally written with a very fine resolution in the JETC-bank they have to be smeared out in the reading step. This also affects the χ^2-values in the 'PATR' bank. MTC-Data therefore contain two additional records for actual calibration data, which also have to be recorded for rewritten smeared data. Thus there are 3 different types of events.

1) no constants - records	usually real data
2) data with constants-records (fine resolution)	original MTC-data
3) data with constants-records (smeared)	rewritten MTC-data

All three types can be handled by the same routines if the following rules are followed:

a) Any occurence of the constants'record causes the appropriate COMMONs to be overwritten. (They can be recognized by their special fixed pointer banks MTCO and MUCO.)

b) Only those data ~~are~~ will be smeared that contain the 'MTCO' bank (as first record) with first non-BOS-word being 0. This "smear flag" has to be set if smeared data are written out again, e.g. by the graphics module.

The following sample program shows the logic for reading and gives the names of the saving and smearing routines. They are on FILLHO.JADEGS and FILLHO.JADEGL.

The logic may have to be modified in different applications. But the above rules should always be taken care of.

```
C  *----------------------------------------------------------
C  *
C  *  VERSION OF 16/05/79   LAST MOD 16/05/79
C  *  EXAMPLE OF A MAIN PROGRAM WITH NEW READING SEQUENCE
C  *  THIS EXAMPLE USES BOS.
C  *----------------------------------------------------------
C
      EXTERNAL BLDAT
      COMMON / BCS / IW(8000)
      DATA NSEC / 2 /
C
CCC   INITIALIZE BOS
      CALL BINT( 8000, 4500, 500, 0 )
C
CCC   READ DEFAULT MU CHAMBER CONSTANTS FROM UNIT 4, INNER DETECTOR
CCC   CONSTANTS HAVE BEEN SUPPLIED THROUGH BLOCKDATA IN BLDAT.
      CALL BREAD( 4, &93, &92 )
      CALL MUCON( 0 )
      CALL BSLT
      CALL BDLG
C
CCC   INITIALISE MT CARLO FLAG
      MFLAG = 0
C
C
CCC   START OF LOOP, READ DATA
   94 CALL BREAD( 2, &93, &92 )
C
CCC   IF MTCO BANK IS IN RECORD, STORE CONSTANTS
CCC   IF NON-DEFAULT PARAMETERS FOR SMEARING ARE TO BE TAKEN CALL RDMTCO
CCC   WITH 'SE' AND SUPPLY ALL NEW PARAMETERS THROUGH COMMON /CBIN/ .
        IPMTCO = IW( IBLN('MTCO') )
        IF( IPMTCO .EQ. 0 ) GO TO 1000
            CALL RDMTCO( 'DE' )
CCC   CHECK SMEAR FLAG
            IF( IW(IPMTCO+1) .EQ. 0 ) MFLAG = 1
            GO TO 95
C
CCC   IF MUCO BANK IS IN RECORD STORE CONSTANTS
 1000 IF( IW( IBLN( 'MUCO' ) ) .EQ. 0 ) GO TO 1100
            CALL MUCON( 0 )
            GO TO 95
C
CCC   SMEAR JET CHAMBER DATA, IF MONTE CARLO FLAG HAS BEEN SET
 1100 IF( MFLAG .EQ. 1 ) CALL RDJETC
C
CCC   PROCESS EVENT ( PRINTOUT OF JETC BANK IN THIS CASE )
      CALL HPRS( 'JETC', 8 )
C
CCC   END OF EVENT PROCESSING ( IN THIS CASE: BOS GARBAGE COLLECTION )
   95 CALL BSLT
      CALL BDLG
      GO TO 94
C
CCC   READ ERROR IN READ STATEMENT
   93 WRITE(6,9101)
 9101 FORMAT(' ****** READ ERROR IN BREAD *******')
      GO TO 94
C
   92 STOP
      END
```