JADE Computer Note 26

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Monte Carlo Tracking

This now describes the usage of the standard tracking program for Monte Carlo events and the changes to the output format.

1) Tracking routine MCJADE

   SUBROUTINE MCJADE performs the tracking of photons and charged particles through the detector.

Calling sequence:

```
CALL  BINT (10.000, 6000, 500, 0)     BOS initialisation
CALL  MCJADE (NEVTS, NPRINT)          tracking routine
      where NEVTS = no. of evts. to be tracked
                    (NEVTS = 0 means until EOF of input or
                    TIME OUT.)
      and NPRINT = no. of events with printed four vectors
```

Additional libraries in LKED-Step:

```
DSN = F11BAR.JADE.LOAD
DSN = RO2BUT.CERNLIB
DSN = F1EBLO.BOSLIB.L
```

Datasets in GO-Step

UNIT	I/O	Name	Purpose
3	I	?	input four vectors
2	O	?	output for tracked particles
21	I	F22 ALL.MUCALIB.DATA0001	μ-chamber calibration data
22	I	NULLFILE	updates to μ-ch. calibration.

2. Output format

MCJADE generates the following record sequence:

Record	Name and No. of fixed printer bank		content of record	
1	MTCO	1	geometrical const. and chamber const.	
2	MUCO	1	μ-chamb. constants	
3	HEAD	1	event data	repeated
.	.	.	.	
.	.	.	.	
.	.	.	.	

Different from JADE.COMPUTER Note No. 10 the old four vector record is now contained in a separate bank VECT in the event record (see section 3) All records are generated in M-format.

3. Generated banks

The following banks build up the event record presently. Their formats have been described in Jade Computer Note No. 23.

Bank Name	No.	Fixed pointer in location	bank descriptor	prog. identifier
HEAD	1			
LATC	0	57	0	0
ATOF	0	59	0	0
ALGN	1	75	0	1
JETC	8	61	0	0
MUEV	0	63	0	0
PATR	12	70	result bank	
VECT	0	98	no raw data	

The old ALGL,7 bank has been replaced by the bank ALGN,1 for calibrated lead glass (see Jade Comp. Note No. 14).

The format of the input 4 vector-bank VECT has been changed to contain the origin of the particles:

TYPE	WORDS	VECT
		0 0 BOS words length
Ix4	1	length of header LO = 9
"	2	length of particle data L1 = 10
"	3	event no.
"	4	no. of final state particles
"	5	no. of charged particles in the final state
"	6	no. of neutrals "
Rx4	7	PHI } angles of jet axis
Rx4	8	COS(THETA) } angles of jet axis
Ix4	9	primary quark flavour (1,2,3,4,5,) for (u,d,s,c,b) resp.
Rx4	LO + 1	
	.	four vector for this particle
	.	
	4	
Rx4	5	mass
Ix4	6	charge
"	7	type (see Jade Computer Note No. 10)
Rx4	8	coordinates of origin for this
	.	
	.	
"	10	particle.

The COMMON /C4VECT/ is no longer filled.

10-12 0
13 Ebeam
McV

4. Existing datasets

DSN = F22ELS.TRJETB30.TAPEM, UNIT = TAPE (619 evts.) and
DSN = F22ELS.JETD30, UNIT=FAST (100 evts.)
contain jet events in the above format. They can be read with the scheme described in JADE Computer Note No. 25.

DSN = F22ELS.SFOR.JETD30, UNIT = FAST
is a temporary copy of the above file in S-format.