GENBOD	CERN Program Library	W515

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Language : Fortran **Revised:**

N-Body Monte-Carlo Event Generator

GENBOD generates a multi-particle weighted event according to Lorentz-invariant Fermi phase space. It is a modification of the routine GENEV (in FOWL (W505)) and uses the method of Raubold and Lynch (see Ref. 1). The total CM energy as well as the number and masses of the outgoing particles are specified by the user, but may be changed from event to event. GENBOD generates the CM vector momenta (and energies) of the outgoing particles and gives the weight which must be associated with each event. The weight may then be multiplied by any 'matrix element' or geometrical detection function calculated by the user.

Structure:

SUBROUTINE subprogram
User Entry Names: GENBOD
Files Referenced: Printer
External References: FLPSOR (M103), RNDM (V104), PDK (W505), ROTES2 (W505)
COMMON Block Names and Lengths : /GENIN/ 21, /GENOUT/ 91

Usage:

```
COMMON /GENIN /NP,TECM,AMASS(18),KGENEV
COMMON /GENOUT/ PCM(5,18),WT
CALL GENBOD
```

Input:

NP	(INTEGER) Number of outgoing particles ($2 \leq$ NP ≤ 18).
TECM	(REAL) Total CM energy.
AMASS	(REAL) Array where element I contains the mass of the I-th outgoing particle.
KGENEV	(INTEGER) $= 1$ for cross section constant with energy, $= 2$ for Fermi energy dependence.

Output:

PCM(1,I)	(REAL) P_x of I-th particle.
PCM(2,I)	(REAL) P_y of I-th particle.
PCM(3,I)	(REAL) P_z of I-th particle.
PCM(4,I)	(REAL) Energy of I-th particle.
PCM(5,I)	(REAL) P of I-th particle.
WT	(REAL) Weight of the event.

See also the **Long Write-up** for FOWL (W505).

References:

1. F. James, Monte Carlo Phase Space, CERN 68-15 (1968)

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