

Súhrn dátových kariet GEANTu

Riadiace karty všeobecného naznačenia

KEY	N	I	VAR	Short description	COMMON	GINIT
HSTA	20	M	LHSTA	names of required standard histograms, see [BASE110]	/GCLIST/	Blank
OPTI	1	I	IOPTI	automatic optimisation of the geometry via GSORD	/GCOPTI/	1
RNDM	2	I	NRNDM	initial random number seed (2 words)	/GCFLAG/	0
RUNG	2	I	IDRUN	user run number	/GCFLAG/	1
			ID EVT	first user event number	/GCFLAG/	1
SORD	1	I	ISTORD	stack ordering flag	/GCSTAK/	0
TRIG	1	I	NEVENT	total number of events to process	/GCFLAG/	10000000
TIME	3	M	TIMINT	time left after initialisation (see Note below)	/GCTIME/	
			TIMEND	time required for termination	/GCTIME/	1
			ITIME	test every ITIME events	/GCTIME/	1

Note: the time allowed for the job after initialisation cannot be set by the user via the data record. To set the total time for the job the user should call the TIMEST routine at the beginning of the program before any call to GEANT routines. This variable in the data record has not been removed for backward compatibility.

Karty pre riadenie fyzikálnych procesov

For more information on the use of these flags, see [PHYS001].

KEY	N	I	VAR	Short description	COMMON	GINIT
ANNI	1	I	IANNI	annihilation	/GCPHYS/	1
AUTO	1	I	IGAUTO	automatic computation of the tracking medium parameters	/GCTRAK/	1
BREM	1	I	IBREM	bremsstrahlung	/GCPHYS/	1
CKOV	1	I	ICKOV	Čerenkov photon generation	/GCTMED/	0
COMP	1	I	ICOMP	Compton scattering	/GCPHYS/	1
CUTS	16	R	Kinetic energy cuts in GeV:			
			CUTGAM	cut for for gammas	/GCCUTS/	0.001
			CUTELE	cut for electrons	/GCCUTS/	0.001
			CUTNEU	cut for neutral hadrons	/GCCUTS/	0.01
			CUTHAD	cut for charged hadrons	/GCCUTS/	0.01
			CUTMUO	cut for muons	/GCCUTS/	0.01
			BCUTE	cut for electron bremsstrahlung	/GCCUTS/	GUTGAM
			BCUTM	cut for muon and hadron bremsstrahlung	/GCCUTS/	CUTGAM
			DCUTE	cut for δ -rays by electrons	/GCCUTS/	10^4
			DCUTM	cut for δ -rays by muons	/GCCUTS/	10^4
			PPCUTM	total energy cut for direct pair production by muons	/GCCUTS/	0.01
			TOFMAX	time of flight cut in seconds	/GCCUTS/	10^{10}
			GCUTS	5 user words	/GCCUTS/	0
DCAY	1	I	IDCAY	decay	/GCPHYS/	1
DRAY	1	I	IDRAY	δ -ray	/GCPHYS/	1

KEY	N	I	VAR	Short description	COMMON	GINIT
ERAN	3	M		cross-section tables structure:		
		R	EKMIN	minimum energy for the cross-section tables	/GCMUL0/	10 ⁻⁵
		R	EKMAX	maximum energy for the cross-section tables	/GCMUL0/	10 ⁴
		I	NEKBIN	number of logarithmic bins for cross-section tables	/GCMUL0/	90
HADR	1	I	IHADR	hadronic process	/GCPHYS/	1
LABS	1	I	ILABS	Čerenkov light absorbtion	/GCPHYS/	0
LOSS	1	I	ILOSS	energy loss	/GCPHYS/	2
MULS	1	I	IMULS	multiple scattering	/GCPHYS/	1
MUNU	1	I	IMUNU	muon nuclear interaction	/GCPHYS/	1
PAIR	1	I	IPAIR	pair production	/GCPHYS/	1
PFIS	1	I	IPFIS	photofission	/GCPHYS/	0
PHOT	1	I	IPHOT	photo electric effect	/GCPHYS/	1
RAYL	1	I	IRAYL	Rayleigh scattering	/GCPHYS/	0
STRA	1	I	ISTRA	energy fluctuation model	/GCPHYS/	0
SYNC	1	I	ISYNC	synchrotron radiation generation	/GCPHYS/	0

Riadenie vstupu a výstupu

KEY	N	I	VAR	Short description	COMMON	GINIT
DEBU	3	M	IDEMIN	first event to debug.	/GCFLAG/	0
			IDEMAX	last event to debug	/GCFLAG/	0
			ITEST	print control frequency	/GCFLAG/	0
GET	20	M	LGET	NGET names of data structures to fetch (see Note)	/GCLIST/	Blank
PRIN	20	M	LPRIN	NPRIN user keywords to print data structure (see Note)	/GCLIST/	Blank
RGET	20	M	LRGET	NRGET names of data structures to fetch from RZ files (see Note)	/GCRZ/	Blank
RSAB	20	M	LRSAB	NRSAB names of data structures to save from RZ files (see Note)	/GCRZ/	Blank
SAVE	20	M	LSAVE	NSAVE names of data structures to save (see Note)	/GCLIST/	Blank
SWIT	10	I	ISWIT	user flags for debug	/GCFLAG/	0

Note: the user data records for I/O have no effect on the GEANT system, and the user is supposed to analyse them at run time and take corresponding action. For instance, a use of the PRIN data record could be the following:

```
CALL GLOOK('VOLU',LPRIN,NPRIN,IPRES)
IF(IPRES.NE.0) THEN
  CALL GPVOLU(0)
ENDIF
```

All the names quoted here are given as 4-character strings in input and their ASCII equivalent is read into the corresponding variable. The same applies to the user lists of the following section.

KEY	N	I	VAR	Short description	COMMON	GINIT
ERAN	3	M		cross-section tables structure:		
		R	EKMIN	minimum energy for the cross-section tables	/GCMUL0/	10 ⁻⁵
		R	EKMAX	maximum energy for the cross-section tables	/GCMUL0/	10 ⁴
		I	NEKBIN	number of logarithmic bins for cross-section tables	/GCMUL0/	90
HADR	1	I	IHADR	hadronic process	/GCPHYS/	1
LABS	1	I	ILABS	Čerenkov light absorbtion	/GCPHYS/	0
LOSS	1	I	ILOSS	energy loss	/GCPHYS/	2
MULS	1	I	IMULS	multiple scattering	/GCPHYS/	1
MUNU	1	I	IMUNU	muon nuclear interaction	/GCPHYS/	1
PAIR	1	I	IPAIR	pair production	/GCPHYS/	1
PFIS	1	I	IPFIS	photofission	/GCPHYS/	0
PHOT	1	I	IPHOT	photo electric effect	/GCPHYS/	1
RAYL	1	I	IRAYL	Rayleigh scattering	/GCPHYS/	0
STRA	1	I	ISTRA	energy fluctuation model	/GCPHYS/	0
SYNC	1	I	ISYNC	synchrotron radiation generation	/GCPHYS/	0

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PRIN	20	M	LPRIN	NPRIN user keywords to print data structure (see Note)	/GCLIST/	Blank
RGET	20	M	LRGET	NRGET names of data structures to fetch from RZ files (see Note)	/GCRZ/	Blank
RSAB	20	M	LRSAB	NRSAB names of data structures to save from RZ files (see Note)	/GCRZ/	Blank
SAVE	20	M	LSAVE	NSAVE names of data structures to save (see Note)	/GCLIST/	Blank
SWIT	10	I	ISWIT	user flags for debug	/GCFLAG/	0

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```

All the names quoted here are given as 4-character strings in input and their ASCII equivalent is read into the corresponding variable. The same applies to the user lists of the following section.

KEY	N	I	VAR	Short description	COMMON	GINIT
SCAP	6	R	scan parameters			
			VX	scan vertex X coordinate	/GCSCAN/	0
			VY	scan vertex Y coordinate	/GCSCAN/	0
			VZ	scan vertex Z coordinate	/GCSCAN/	0
			FACTX0	scale factor for SX0	/GCSCAN/	100
			FACTL	scale factor for SL	/GCSCAN/	1000
			FACTR	scale factor for R	/GCSCAN/	100

3.7 Landau fluctuations versus δ -rays

In order to avoid double counting between energy loss fluctuations (ILOSS=2) and generation of δ -rays IDRAY=1, if ILOSS = 2 the default value for δ -ray generation is set to 0 and it cannot be changed. The different cases are summarised in the table below.

	Full fluctuations ILOSS = 2 (D)	Restricted fluctuations ILOSS = 1 or 3	No fluctuations ILOSS = 4
IDRAY	0	1	1
DCUTE	10 TeV	CUTELE	CUTELE
DCUTM	10 TeV	CUTELE	CUTELE