

Stopping in Physics Lists

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Obsolete: G4LHEPStoppingHadronBuilder

- Used in **LHEP** physics list
- It uses the classes (in *hadronic/stopping*)
 - G4MuonMinusCapture
 - G4AntiProtonAnnihilationAtRest
 - G4AntiNeutronAnnihilationAtRest
 - G4PionMinusAbsorptionAtRest
 - G4KaonMinusAbsorption
- Proposal:
 - keep LHEP physics list for developers only (or create a new physics list without hadronics!)
 - but without stopping
 - the old LEP stopping classes can be deleted

Obsolete classes in physics_lists/

16 or 6 classes:

G4LHEPStoppingHadronBuilder
G4LHEPStoppingPhysics

LHEP_EMV
QGSP_BERT_NOLEP
LHEP

HadronPhysicsLHEP_EMV
HadronPhysicsQGSP_BERT_NOLEP
HadronPhysicsLHEP

G4HadronElasticPhysicsLHEP
G4HyperonLHEPBuilder
G4IonLHEPPhysics
G4LHEPAntiBarionBuilder
G4LHEPNeutronBuilder
G4LHEPPiKBuilder
G4LHEPProtonBuilder
G4MiscLHEPBuilder

Obsolete classes in stopping/

26 classes:

G4AntiNeutronAnnihilationAtRest
G4DistributionGenerator
G4KaonMinusAbsorptionAtRest
G4MuonMinusCaptureAtRest
G4PiMinusAbsorptionAtRest
G4PiMinusStopAl
G4PiMinusStopCo
G4PiMinusStopLi
G4PiMinusStopN
G4PiMinusStopPb
G4PionMinusAbsorptionAtRest
G4StopDeexcitation
G4StopElementSelector

G4AntiProtonAnnihilationAtRest
G4ElementSelector
G4KaonMinusAbsorption
G4NeutronCaptureAtRest
G4PiMinusStopAbsorption
G4PiMinusStopC
G4PiMinusStopCu
G4PiMinusStopMaterial
G4PiMinusStopO
G4PiMinusStopTa
G4StopDeexcitationAlgorithm
G4StopDummyDeexcitation
G4StopTheoDeexcitation

Obsolete: G4QStoppingPhysics and G4QCaptureAtRestPhysics

- Used in all **CHIPS**-based physics lists
- They use the class **G4QCaptureAtRest** which is in the CHIPS package
- We are going to delete the whole CHIPS package

Obsolete classes in physics_lists/

42 classes:

G4QStoppingPhysics

G4QCaptureAtRestPhysics

CHIPS

CHIPS_HP

QGSC_CHIPS

QGSC_BERT

QGSP_BERT_CHIPS

G4MiscQGSCBuilder

G4QGSC_CHIPSNeutronBuilder

G4QGSC_CHIPSPiKBuilder

G4QGSC_CHIPSProtonBuilder

G4QGSC_EflowNeutronBuilder

G4QGSC_EflowPiKBuilder

G4QGSC_EflowProtonBuilder

G4QGSCNeutronBuilder

G4QGSCPiKBuilder

G4QGSCProtonBuilder

G4QGSC_QGSCNeutronBuilder

G4QGSC_QGSCPiKBuilder

G4QGSC_QGSCProtonBuilder

G4QNeutronBuilder

G4QPhotoNuclearPhysics

HadronPhysicsCHIPS

HadronPhysicsCHIPS_HP

HadronPhysicsQGSC_CHIPS

HadronPhysicsQGSC_BERT

HadronPhysicsQGSP_BERT_CHIPS

G4MiscCHIPSBuilder

G4QGSC_CHIPSNeutronBuilder

G4QGSC_CHIPSPiKBuilder

G4QGSC_CHIPSProtonBuilder

G4HyperonCHIPSBuilder

G4QInelasticCHIPSBuilder

G4QInelasticCHIPS_HPBuilder

G4QAtomicPhysics

G4QEmExtraPhysics

G4QElasticPhysics

G4QIonPhysics

G4QMessenger

G4QNeutrinoPhysics

G4QNeutronHPBuilder

G4QProtonBuilder

G4StoppingPhysics

- The new stopping used in most physics lists
- It uses the 3 classes (in *hadronic/stopping*)
 1. G4MuonMinusCapture
 2. G4HadronicAbsorptionBertini
 3. G4HadronicAbsorptionFritiof
- These classes, which inherit from G4HadronStoppingProcess (which inherit from G4HadronicProcess), depend on:
 - Precompound
 - Bertini
 - Fritiof