# Geant 4

## *release 5.0 – planned features*

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# Features planned for Geant4 5.0

- **Geometry & Transportation**
  - Enhancements
    - Implement mechanism for dumping solids/volumes
    - Automatic detection of some forbidden or illegal geometry set-ups
  - Design iteration & implementation
    - Importance biasing
    - Event scoring

# Features planned for Geant4 5.0 - 2

- **General developments**
  - G4Exception
    - Redesign of `G4Exception` according to severity levels
- **Particles & Tracks**
  - Improvements in tracking performance
- **Materials**
  - Expanded `G4MaterialPropertiesTable` to include named constant material properties

# Features planned for Geant4 5.0 - 3

- **Electromagnetic physics**
  - Standard electromagnetic
    - Prototype implementation of the 'standard' processes using a model approach
    - Scintillation process: new functionality for time components and associated emission spectra per scintillating material
  - Low Energy electromagnetic
    - Fixes and improvements, in response to open problems
    - New physics features

# Features planned for Geant4 5.0 - 4

- **Hadronic physics**
  - Create and document *educated guess* physics lists for major use cases
  - Release of cascade part of HETC rewrite
  - Release of new kinetic model
  - Provide generic scattering term for cascade type models
  - Improve validation suite for the cascade energy range

# Features planned for Geant4 5.0 - 5

- **Visualisation & Graphics Representations**
  - Implementation of XML-based DTREE
  - Implementation of DCUT (slice picture) in multiple drivers, surface visualization in DCUT
  - Display of attributes by 'picking' trajectory
  - More flexible interface to WIRED, e.g., network control of WIRED by Geant4
  - Visualization of smoothly curved trajectory
  - Precision control in the DAWNFILE driver

# Features planned for Geant4 5.0 - 6

- **Persistency**
  - Design review
    - Better modularisation separating functional interface and concrete implementations
    - Extend ability to switch among multiple persistency technologies
  - New example to support LCG persistency and ROOT I/O
  - Support for persistent and transient HepMC
  - Implementation of base class to register user converters

# Release 5.0 - schedule

- **Release date: December 13th 2002**
  - November 1st – GROUP-1 categories
    - config, global, materials, graphics_reps, intercoms, geometry/management, particles, track
  - November 8th – GROUP-2 categories
    - rest of geometry, processes/management, processes/transportation, processes/electromagnetic, digits_hits, tracking
  - November 15th – GROUP-3 categories
    - the rest of processes, parameterisations, event, run, readout, persistency, visualization, interfaces, g3tog4, examples, environments
  - December 2nd
    - End of Integration/System Testing
    - End of User Documentation update
  - December 2nd – 13th – Release phase
    - QA and validation
    - User documentation packaging
    - Libraries preparation and distribution