Parallel Navigation

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Overview

- Background

- Latest developments

- Open Issues

- Plans

Background

- Parallel Navigation allows the tracking of tracks in multiple geometries simultaneously. Applies
  - 'Straight' tracks (neutral or not in field)
  - Curved tracks (charged in field)

- Several classes involved at each step
  - G4CoupledTransportation
  - G4PathFinder   (multiplexes for straight tracks)
  - G4PropagatorInField (charged only, +classes below it)
  - G4MultipleNavigator (charged only)

Progress

- Debugged problem
  - reported by A . Di Simone
  - Clear symptoms
  - Identified source of problem
    - Information not copied between G4PropagatorInField and (new class) G4VIntersectionLocator
      - Problem introduced in development introduced in Geant4 9.2
  - Affects all uses & users
  - Correction included in geant4-09-02-ref-05
    - Not yet included in patch of 9.2

Open issues – collect

There are several types of problems, several in examples and tests

- Cylindrical scoring
  - exampleN07

- Cavern background (scoring)
  - Code from Tatsumi

- Geometrical (Importance) Biasing
  - Test33 errors

Plans

- Identify the source(s) of current problems
  - Typically it takes 2-4 days of sustained effort to identify the source of a bug.

- Timescale
  - As soon as possible

- Thanks!