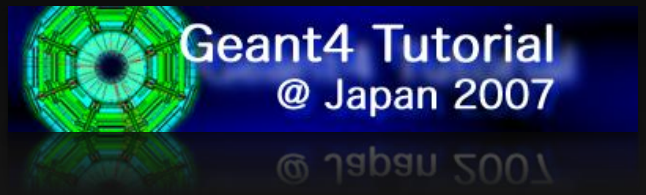
Tutorial Overview

Geant4 Tutorial @ Japan 2007

Geant4 Collaboration

KEK/CRC

Tutorial Structure



- 2 afternoon sessions + 60 min. session on the last day
- Based of the latest release, Geant4 9.0 patch01

- Lectures
  - covering major aspects Geant4
  - mainly for novice users
  - better(expected) to have a reasonable knowledge of C++

- Topics
  - advanced/new features
  - topics from recent development
  - user applications

- Hands-on work
  - installation as home work
  - 3 sets of exercises

Time Table, Day-1 (Wed)

- Geant4 Overview and Kernel
  - Introduction
  - Kernel structure
  - User support
- Programming Guide for Geant4 users
  - G4-types
  - CLHEP staffs
  - C++ features in Geant4
- How to build/run user applications
  - User classes/actions
  - How to write main()
  - How to configure/build user applications
  - How to run user applications
  - How to visualize
- Material and Geometry I
  - Material definition
  - NIST material DB
  - G4VUserDetectorConstruction class
  - Geometry definition
  - Solid, Logical volume, Physical volume (placement), World volume
  - Geometry collision detection
- Hands-on work 1
- Hands-on work2

Time Table, Day-2 (Thu)

- Particle and Physics Processes
  - Particles
  - Processes
  - Range cuts
  - User limits
- Geant4 Physics
  - Inventory of Geant4 Physics
  - EM, Hadron, Neutron, Ion, …
- Physics List
  - G4VUserPhysicsList class
  - How to define physics list
  - Modular physics list
  - Packaged physics list
- Primary Particle
  - G4VPrimaryGeneratorAction class
  - Particle gun
  - General particle source
- Geometry II
  - Advanced geometry implementation
  - Magnetic field
- UI Command and Messenger
  - Messenger classes
  - Defining user commands
- Sensitive Detector and Hists
  - How to describe detector sensitivity
  - Sensitive detector
  - Hit/Hit collection
- Histogramming and Analysis using ROOT
  - ROOT programming
  - ROOT histogramming
  - How to use ROOT
- Hands-on work 3

Lecturers

- Go Iwai (KEK/CRC)
  - Programming guide
- Toshiyuki Toshito (JST, KEK/CRC)
  - Geometry/Material, Physics
- Tomohiro Yamashita (JST, Kobe Univ.)
  - User application, Primary, Detector response
- Koichi Murakami (KEK/CRC)
  - Generals, Advanced topics (Geometry, Process, UI)