Welcome !

geant4-dna.org

Lecturers

Ngoc Hoang TRAN
CNRS / IN2P3, Bordeaux, France
tran@lp2ib.in2p3.fr

Sébastien INCERTI
CNRS / IN2P3, Bordeaux, France
sebastien.incerti@cnrs.fr

Geant4-DNA tutorial
Pohang Accelerator Laboratory, Republic of Korea
07/02/2025

Geant4 version 11.3
Released in December 2024

A big thank you!

- **Tutorial's organizers**
  - Pr Cho, KISTI
  - Dr Lee, NCC
  - Dr Hahn,
  - Pr Jeon, IBS
  - Pr Yeom, Yonsei

  - **And to**
    - Pr Choi, SNUH
    - Euntaek

Today's tutorial

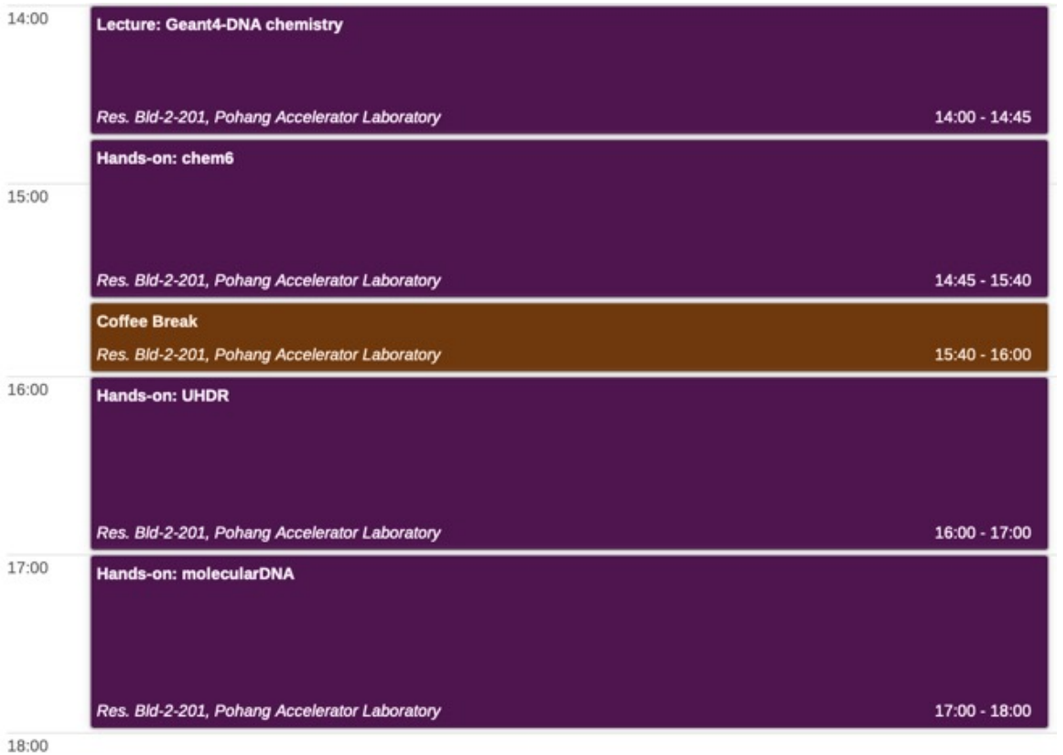
- **Introduce users to Geant4-DNA**
  - **Overview** of the Geant4-DNA project
  - Introduction **lectures** to **key components**
    - **Physics**: track structures
    - **Chemistry**: water radiolysis
    - (sub-)cellular scale **geometries**
    - **Biological damage** prediction
  - **Hands-ons** based on a selection of **user examples**

- All software is **already fully included in Geant4**
  - No other external software needed

- We also showcase our **Geant4 Virtual Machine** for easier access to Geant4(-DNA)

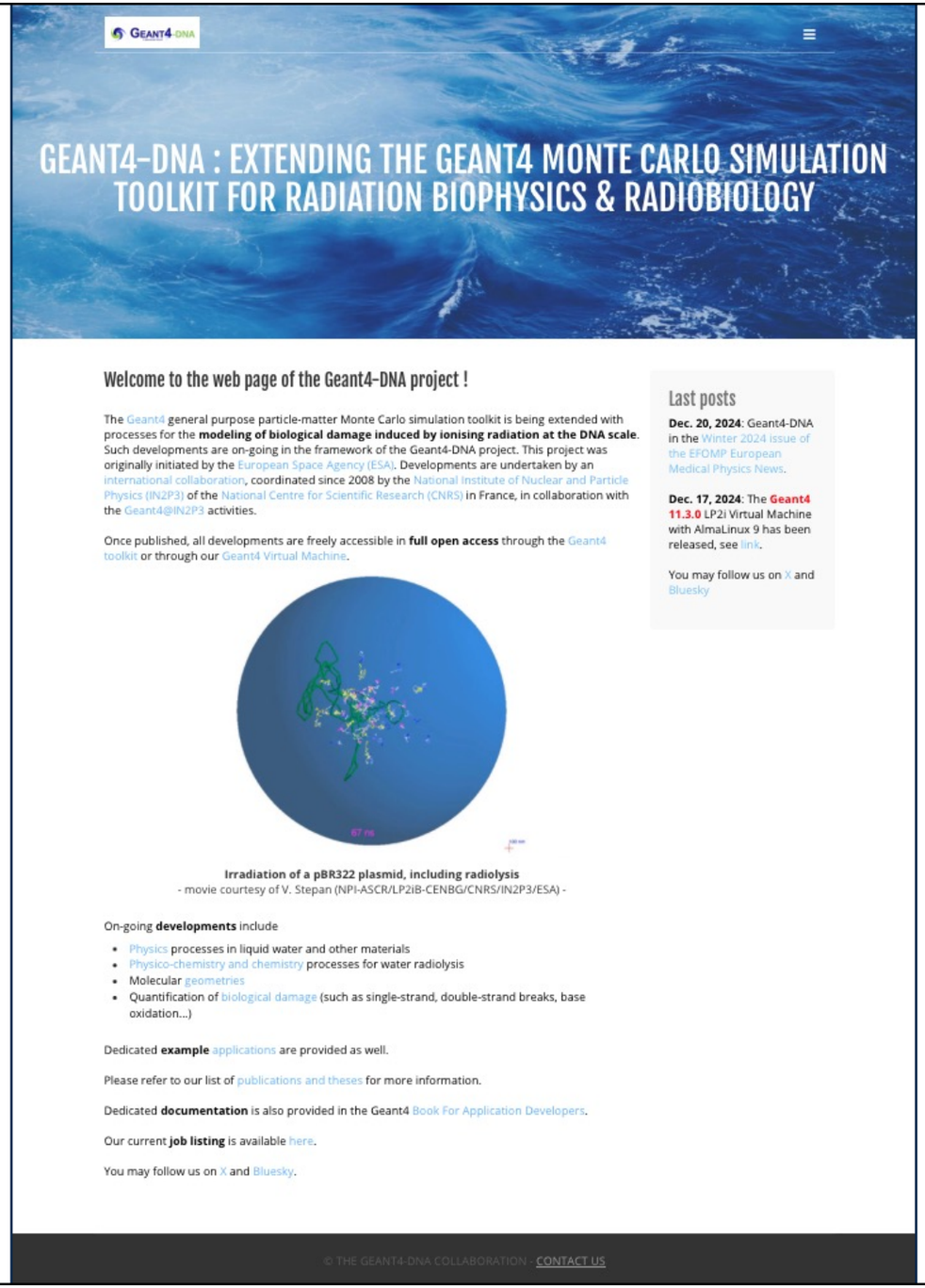
Today's schedule

- https://hep0.kisti.re.kr/event/284/timetable/#20250207.detailed



The Geant4-DNA website

https://geant4-dna.org/



Geant4-DNA reference publications

Important notice:
Any communication, report or publication results obtained using the Geant4-DNA software shall cite at least the five following publications by the Geant4-DNA Collaboration

1. **Review of chemical models and applications in Geant4-DNA: Report from the ESA BioRad III Project**,
   H. N. Tran et al.,
   Med. Phys. 51 (2024) 5873-5889 (link)

2. **Geant4-DNA example applications for track structure simulations in liquid water: a report from the Geant4-DNA Project**,
   S. Incerti et al.,
   Med. Phys. 45 (2018) e722-e739 (link)

3. **Track structure modeling in liquid water: A review of the Geant4-DNA very low energy extension of the Geant4 Monte Carlo simulation toolkit**,
   M. A. Bernal et al.,
   Phys. Med. 31 (2015) 861-874 (link)

4. **Comparison of Geant4 very low energy cross section models with experimental data in water**,
   S. Incerti et al.,
   Med. Phys. 37 (2010) 4692-4708 (link)

5. **The Geant4-DNA project**,
   S. Incerti et al.,
   Int. J. Model. Simul. Sci. Comput. 1 (2010) 157–178 (link)

Thank you very much