



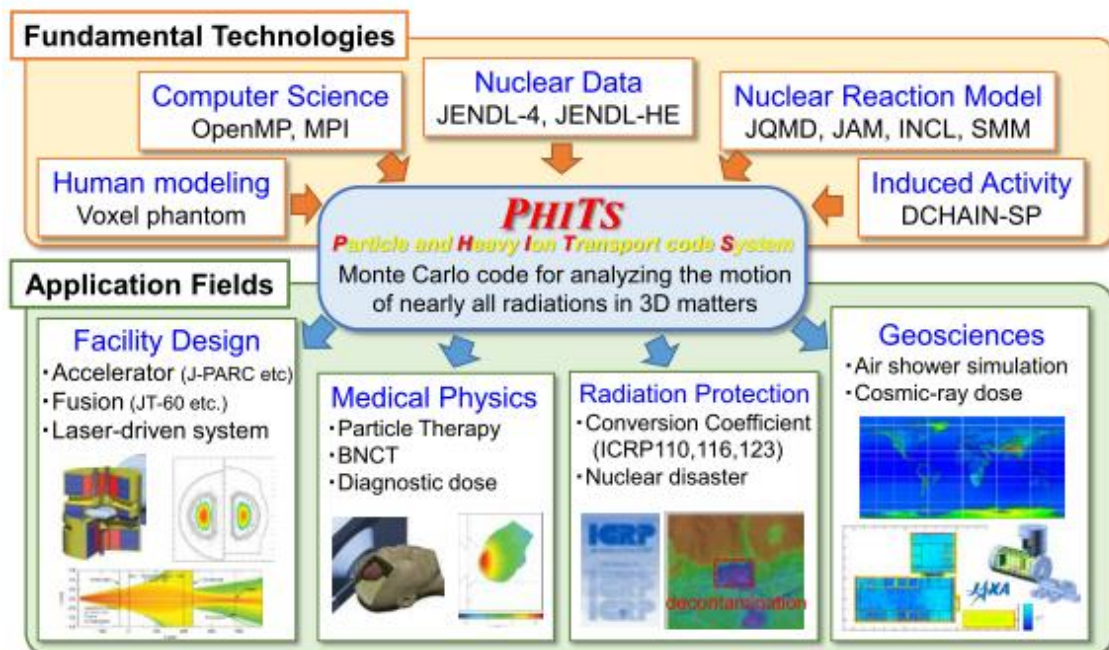
PHITS

Particle and Heavy Ion Transport code System



PHITS is a general purpose Monte Carlo particle transport simulation code developed under a collaboration between Japan Atomic Energy Agency (JAEA) and several institutes all over the world. It can simulate the transport of nearly all particles over wide energy ranges, using nuclear reaction models and nuclear data libraries. PHITS can support your research in the fields of accelerator technology, radiotherapy, space ion radiation, and in many other fields which are related to particle and heavy ion transport phenomena. See PHITS website in more detail. (<http://phits.jaea.go.jp>)

This tutorial covers the basics, advanced functions and practical applications of PHITS. The course begins with sessions dedicated to definition of 3D geometry, sources and tallies including various exercises. These sessions are followed by advanced sessions on variance reduction, definition of force fields, and the CT image handling. In the latter half of the tutorial, participants can perform their own PHITS simulation under the support of tutors during the individual hands-on sessions. Through this tutorial, participants can learn most of the features of PHITS, from basic to advanced, using the lecture materials of the standard package and users' own input/output files.



In-Person Beginner/Advanced Tutorial + Workshop in Cameroon

Venue: NRPA Douala office (Boulevard de la Liberté, Immeuble
KASSAP (ANRP, 7eme étage) Akwa, Douala – CAMEROON)

Local organizers: Cebastien GUEMBOU SHOUOP,
Maurice NDONTCHUENG MOYO

Tutors: Tatsuhiko OGAWA, Tatsuhiko SATO (JAEA)

Date and time: 29th Jan – 2nd Feb. 2024. 9:00-18:30

Registration deadline: 21st Dec. 2023

- You can register from <https://phits.jaea.go.jp/contact/edit/en>
- Non-users must apply for the license in addition to the registration.

Contacts

(Registration and license) : <https://phits.jaea.go.jp/contact/edit/en>

(Local organization) : sebastianguebou @gmail.com

----- **Timetable** -----

Date : 29th Jan. – 2nd Feb. 2024.

29th Jan. (Mon.)

9:00-9:30: Opening ceremony (Remarks from local organizer, and Tutor)

9:30-10:15: Introduction and Installation

Coffee break

10:30-12:00: Basic Lecture (input format)

Lunch break

13:30-14:45: Basic Lecture (geometry & source definition)

Coffee break

15:00-17:00: Basic Lecture (tally definition)

17:00-18:00: Free Q&A

30th (Tue.)

9:00-10:15: Basic Lecture (parameter setting)

Coffee break

10:30-12:00: Basic Lecture (parameter setting continued)

Lunch break

13:30-14:30: Exercise (melt snowman by proton beam!)

Coffee break

14:15-15:45: Advanced Lecture (advanced source definition)

Coffee break

16:30-17:30:	Exercise (stop α , β , γ -rays & neutron)
	Coffee break
17:30-18:30	Free Q&A
31st (Wed.)	
9:00-10:15:	Advanced Lecture (variance reduction by Importance, Forced collisions)
	Coffee break
10:30-12:00:	Advanced Lecture (variance reduction by Weight window)
	Lunch break
13:30-15:15:	Advanced Lecture (Transform, Magnetic field, Multiplier, Counter)
	Coffee break
15:30-17:30:	Individual hands-on exercises
17:30-18:30:	Free Q&A
1st Feb. (Thu.)	
9:00-10:15:	Advanced Lecture (induced radioactivity calculation with DCHAIN)
	Coffee break
10:30-12:00:	Advanced Lecture (shielding calculation)
	Lunch break
13:30-15:15:	Advanced Lecture (automated run using script files)
	Coffee break
15:30-16:30:	Individual hands-on exercises
	Coffee break
16:45-17:45:	Workshop
17:45-18:30:	Free Q&A
2nd (Fri.)	
9:00-10:30:	Advanced Lecture (Cosmic rays)
	Coffee break
10:30-12:00:	Individual hands-on exercises
13:30-15:15:	Advanced Lecture (Medical data treatment with RT-PHITS)
	Coffee break
15:30-16:30:	Workshop
16:30-17:30:	Wrap-up session –Open discussion on the future of PHITS and its community in Cameroon--
17:45-18:30:	Free Q&A

Preparation instructions (What to do in advance)

* We would kindly ask you to complete following steps in prior to the seminar.

- Obtain PHITS package from PHITS office
- Install PHITS to your personal laptop computer

Please feel free to contact PHITS office if you have any questions or troubles in PHITS installation.

● **Please bring your laptop computer to the tutorial.** The laptop computer must have following specifications

- OS: Windows (11, 10, 8, 7, Vista, XP), Mac OS X(v10.6 or later) , Linux
- Memory: more than 1GB(preferably more than 2GB)
- Hard disk space: more than 13 GB available
- Administrator account
- **Software installation:**
 - pdf reader (Adobe Reader)
 - ppt file reader (Seminar materials are in pdf, ppt or pptx)
 - The materials are distributed with PHITS package. If you wish to read in advance, you can download and printout in advance from <http://phits.jaea.go.jp/rireki-manuale.html>
 - **Text editor** in which line numbers are displayed (CotEditor, Notepad++, Sublime Text, etc.)
 - **EPS viewer** (Program to open files “*.eps”. If OS is Windows or Linux: Ghostscript and SmatraPDF, If OS is Mac: Ghostscript)