# International Workshop on PHITS

in Guangdong, China

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 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.
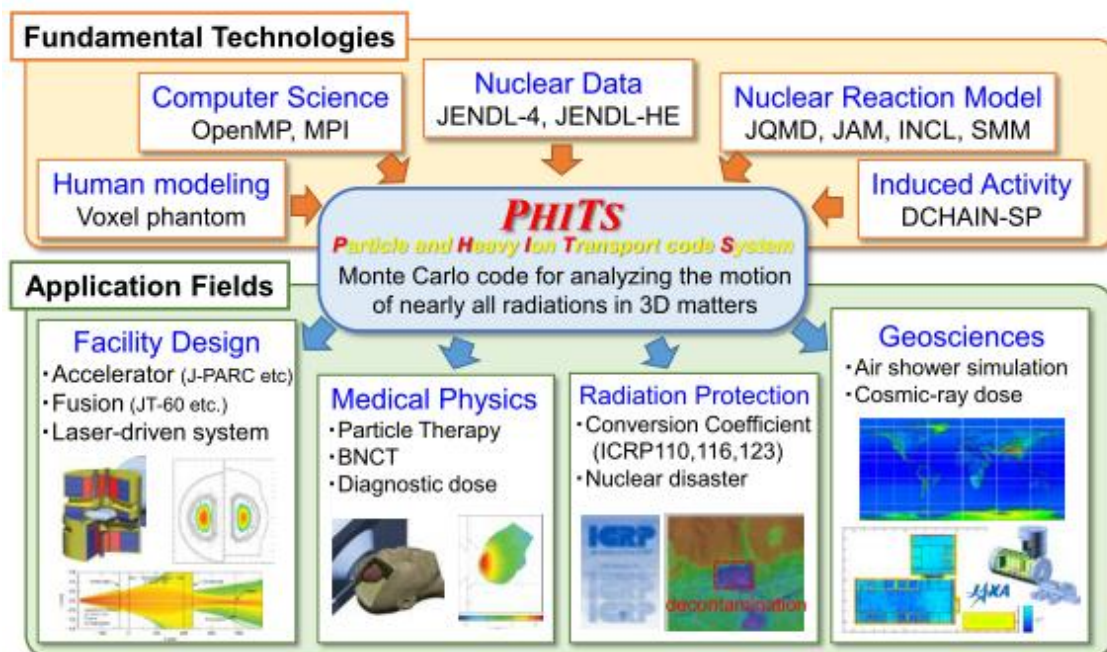
Venue: Sun Yat-sen University, Zhuhai, Guangdong, China.

(广东省 珠海市 中山大学)

Local organizer: Prof. Shengli Chen (陈胜利 助理教授)

Tutors: Dr. Tatsuhiko OGAWA, (JAEA)
                          Dr. Yuho HIRATA (JAEA)

Date and time: 4th– 8th Dec. 2023. 9:00-18:00

Registration deadline: November 25th 2023 (Chinese),
                       November 1st 2023 (non-Chinese)

- You can register by contacting chenshli23@mail.sysu.edu.cn or send a form from https://phits.jaea.go.jp/contact/edit/en
- Non-users must apply for the license in addition to the tutorial registration.

Contacts
    (license) : https://phits.jaea.go.jp/contact/edit/en
    (Local organization) : Prof. Shengli Chen chenshli23@mail.sysu.edu.cn

--------- Timetable ---

Date : 4th-8th Dec. 2023.

4th Dec.（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

5th   （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 (stop α, β, γ-rays & neutron)
               Coffee break
  14:45-16:00:   Exercise (melt snowman by proton beam!)
               Coffee break
  16:00-17:00: Advanced Lecture (variance reduction by Importance, Forced collisions)
  17:00-18:00:   Free Q&A

6th （Wed.）
   9:00-10:15: Advanced Lecture (variance reduction by Weight window)
               Coffee break
  10:30-12:00: Advanced Lecture (advanced source definition)
               Lunch break
  13:30-15:15: Advanced Lecture (Transform, Magnetic field, Multiplier, Counter)
               Coffee break
  15:30-17:00: Individual hands-on exercises

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

7th　（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
　15:30-17:00:　Individual hands-on exercises
　17:00-18:00:　Free Q&A

8th　（Fri.）
　9:00-10:30:　Advanced Lecture (Cosmic rays)
　　　　　　　　Coffee break
　10:30-12:00:　Advanced Lecture (Medical data treatment with RT-PHITS)
　　　　　　　　Lunch break
　13:30-15:15:　Individual hands-on exercises
　　　　　　　　Coffee break
　15:30-16:30:　Individual hands-on exercises
　16:30-17:00:　Wrap-up session –Open discussion on the future of PHITS and its community in Guangdong--

If users bring their laptop to the venu…..

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)