

# Joint Symposium on Nuclear Data and PHITS in 2023

Industry and Information Plaza iVil, Nov 15–17, 2023.

## 15 Nov 2023 (Wed)

**Opening address (13:30~13:40) Jun-ichi HORI (Kyoto University)**

**(13:40~15:50) Chair: Shin-ichiro MEIGO (JAEA)**

**13:40 Relationship with JENDL and Expectations for Possibilities of Opening up Nuclear Data**

Tokio FUKAHORI (JAEA)

**14:20 Reactor physics for innovative reactor development and applications in space, medical and planetary science**

Naoyuki TAKAGI (Tokyo City University)

**14:50 Experiences of HTTR Critical Approach Calculation and Nuclear Data**

Nozomu FUJIMOTO (Kyushu University)

**15:20 Measurement of photoneutron production cross section for mono-energetic linearly polarized photon**

Toshiya SANAMI (KEK/SOKENDAI)

**Break (15:50~16:00)**

**(16:00~17:00) Chair: Atsushi KIMURA (JAEA)**

**16:00 Nuclear data generation by combining machine learning and nuclear reaction models**

Shoto WATANABE (Hokkaido University)

**16:30 Crucial importance of correlation between cross sections and angular distributions in nuclear data of  $^{28}\text{Si}$  on estimation of uncertainty of neutron dose penetrating a thick concrete**

Naoki YAMANO (Tokyo Institute of Technology)

## 16 Nov 2023 (Thu)

**(09:30~12:00) Chair: Yosuke IWAMOTO (JAEA)**

**09:30 Overview of FRENDY version 2**

Kenichi TADA (JAEA)

**10:30 Nuclear data measurement by surrogate reactions using ion beam**

Katsuhisa NISHIO (JAEA)

**11:00 Muon Nuclear Data**

Megumi NIKURA (RIKEN)

**11:30 Research and Development on Recycling of Radioactive Waste in JAEA**

Takanori SUGAWARA (JAEA)

**Lunch (12:00~13:00)**

**(13:00~14:50) Chair: Chikako ISHIZUKA (Tokyo Institute of Technology)**

**13:00 Features of the Supercritical Water-cooled Reactor (SCWR) and the Reactor Physics Issues**

Akinori YAMAJI (Waseda University)

**13:30 Overview and future of JENDL-5**

Osamu IWAMOTO (JAEA)

**14:00 Experiments for nuclear data using RCS at J-PARC and HiRadMat at CERN**

Shin-ichiro MEIGO (J-PARC/JAEA)

**14:30 Activities of Investigation Committee on Nuclear Data of AESJ**

Nobuhiro SHIGYO (Kyushu University)

**Group photo,**

**Break (14:50~15:00)**

**Poster presentation (15:00~17:00)**

**Social gathering (18:00~20:00)**

**17 Nov 2023 (Fri)**

**Opening address and recent status of PHITS (9:30~9:50) Tatsuhiko SATO (JAEA)**

**(09:50~10:50) Chair: Shintaro HASHIMOTO (JAEA)**

**09:50 Current development status of simulation code for physical and chemical processes in PHITS**

Yusuke MATSUYA (Hokkaido University)

**10:10 Details of the PHIG-3D's visualization functions**

Seiki OHNISHI (National Marine Research Institute)

**10:30 Geometry Design of Complex Entities into the PHITS Computational Space by using 3D-CAD/CG and Solid Meshing**

Minoru SAKAMA (Tokushima University)

**Break (10:50~11:00)**

**(11:00~12:00) Chair: Takuya FURUTA (JAEA)**

**11:00 A Proposal for the Development of Boron Neutron Capture Therapy Agents based on Simulation Studies using PHITS Microdosimetry**

Takafumi SHIGEHIRA (Okayama University)

**11:20 Simulation Analysis of Cosmic Ray Muon Penetrating Subsurface of Huge Mountain**

Shoichi NAKAMURA (Yamanashi University)

**11:40 Fundamental study on responsiveness of gel dosimeters to carbon-ion beams and applicability of measurement of three dimensional dose distribution**

Masumitsu TOYOHARA (Toshiba Energy Systems & Solutions Corporations)

**Lunch (12:00~13:00)**

**(13:00~15:00) Chair: Tatsuhiko OGAWA (JAEA)**

**13:00 Nuclear heating and damage data in JENDL-5 neutron ACE file**

Chikara KONNO (JAEA)

**13:20 Simulation of aluminum activation experiment at CERN/CHARM**

Tsuyoshi KAJIMOTO (Hiroshima University)

**13:40 Test of <sup>107</sup>Pd transmutation with macroscopic quantities**

Yasuto MIYAKE (RIKEN)

**14:00 Design of radiation shield for RI production beam line by PHITS**

Atsuko AKASHIO (RIKEN)

**14:20 Calculation of the Skyshine Radiation Measurement Experiment in Kansas by PHITS**

Yusuke YASUNO (Mitsubishi Nuclear Fuel Co., Ltd.)

**14:40 Introduction to PHITS-UDM (User Defined Model)**

Yasuhito SAKAKI (KEK/SOKENDAI)

**Poster Award Ceremony and Closing Remarks (15:00~15:20)**

**Yosuke IWAMOTO (JAEA), Jun-ichi HORI (Kyoto University)**

## Poster List

No.	Title	Name
1	Improving Accuracy of Fission Product Yields by Bayesian Neural Network	Jingde CHEN Tokyo Institute of Technology
2	4-D Langevin trajectory analysis using machine learning	Yuta MUKOBARA Tokyo Institute of Technology
3	Study of INC model for $\alpha$ incident reaction at 230 MeV/u	Toshimasa FURUTA Kyushu University
4	Calculation of Fission Fragment Yields for thermal neutron reaction of $^{239}\text{Pu}$	Futoshi MINATO Kyushu University
5	Development of a New Web Services and RESTful APIs for for Experimental Nuclear Reaction Database (EXFOR)	Shin OKUMURA IAEA
6	Neutron total and capture cross section measurements of $^{\text{nat}}\text{Er}$ at ANNRI	Gerard ROVIRA JAEA
7	Measurement of the very-forward-angle neutron elastic scattering and PHITS simulation for neutron shielding	Tomoya NAKADA Kyoto University
8	Evaluation of Photonuclear Reaction Data $^{209}\text{Bi}$ at 13 and 17 MeV photon energy	Thuong Thi Hong NGUYEN SOKENDAI
9	Measurement of double differential cross sections of charged particles produced by 100 MeV/u $^{12}\text{C}$ beam nuclear reactions	Ryota IKOMA Kyushu University
10	Production of Np isotopes from $^{238}\text{U}$ beam at BigRIPS in RIKEN	Chihaya FUKUSHIMA Tokyo City University
11	Isotopic production of high-radiotoxic nuclide $^{90}\text{Sr}$ via proton- and deuteron-induced reactions and new analytical model for its longitudinal momentum distribution	Riku MATSUMURA Saitama University
12	Measurement of the spallation neutron spectrum by unfolding at 180° from 3-GeV protons and $^{\text{nat}}\text{Hg}$ with the $^{209}\text{Bi}(n,xn)$ reactions	Kenta SUGIHARA KEK
13	C/Be neutron converter design for increasing production amount of medical radioisotopes in accelerator neutron method	Takahiro KIHARA Kyushu University
14	Small-angle neutron scattering and neutron transmission of hardened cement paste	Kaoru HARA Hokkaido University
15	Feasibility test of cavity exploration using a prototype muography detector	Ayumu OKUDA Kyushu University
16	Development of New Technique to Measure Neutron-Induced Charged-Particle Emission Reactions Using Sample-Added Scintillator	Gengchen LI Tokyo Institute of Technology

17	Study on Neutron Activation Method Using UV-curing Resin Scintillator	Hiromi KONDO	Tokyo Institute of Technology
18	Performance evaluation of an EJ-276 plastic scintillator using $^{252}\text{Cf}$ neutron source	Teppeï KAWATA	Kyushu University
19	Development of a PHITS simulation technique and a numerical method to optimize measures against radioactive sources	Naoya FURUTACHI	RIST
20	Design of new brachytherapy source using PHITS code	Ayano MAKINAGA	RIKEN
21	Direction Vector Visualization of Scattered Radiation for fluoroscopy by PHITS	Kyoko HIZUKURI	Kyushu University
22	The ambient dose in TrueBeam LINAC: Measurement and PHITS simulation with JENDL - 5.0	Soai DANG QUOC	Kyushu University
23	Real-time scattered radiation exposure estimation system during X-ray fluoroscopy using PHITS results	Kenta HONIDEN	Kyushu University
24	Estimation of deposition positions of $\alpha$ -emitters in the body by L X-ray analysis	Koki HOKAZONO	Kyushu University
25	Estimation of Radioactivity Depth Distribution of Concrete in a BNCT Facility	Masaski ISHIKAWA	Kyushu University