



TEWS²⁰²⁵JPN 

Rev.13 Feb.

TEWS 2025 JPN “RP NORM”

**INSTA Spring School of
Advanced Radiation Protection
Focusing on NORM
under Risk Management
&Communication**

March 2025

Tokyo, Japan

Hosted by JVET(Japanese Volunteer’s Expert Team)

Supported by The University of Tokyo and
NPO-STIF(Science and Technology Information Forum)



Messages from INSTA Organizers

INSTA Chair

Dr. Irman ABDUL RAHMAN



Chair
INSTA Steering Committee

Associate Professor,
National University of
Malaysia



First and foremost, let me congratulate all of you for being selected to take part in TEWS 2025 Japan, the first ever INSTA School, hosted by the JVET, a member of the International Nuclear Science & Technology Academy (INSTA). INSTA has planned series of these schools as flagship events, to enhance understanding and knowledge of nuclear science and technology applications to educators. As places for these INSTA schools are very limited and in high demand, it is my hope that all participants take full advantage of this opportunity to network and learn as much as you can about the topic covered in this school. But more importantly, please enjoy this experience!

Host of TEWS 2025 JPN

Prof. Takeshi IIMOTO



Coordinator of Japanese
volunteer's Expert Team
(JVET)

Professor,
The University of Tokyo



INSTA supported by IAEA Technical Cooperation Project tries to pave the way through active educators for developing tertiary students to be introduced to NST to ensure the sustainability of HR in the region. Under this activity, we are happy to hold the Spring School in Japan to invite motivated international educators and share our experiences and knowledge with them on radiation protection especially focusing on NORM problem. We would like to express much appreciation to the Government of Japan and in particular STIF and The University of Tokyo for supporting and hosting this event "TEWS 2025 JPN". We hope all the participants enjoy our event and feel limitless possibility on education diversity of radiation protection.

IAEA

Ms Marina binti MISHAR



Section Head, Programme
Management Officer

Technical Cooperation
Division for Asia and the
Pacific



Congratulations to the selected participants of the first INSTA School on Advanced Radiation Protection Focusing on NORM under Risk Management & Communication. Hosted by the Government of Japan, with the support of JVET, The University of Tokyo, and NPO-STIF, this 11-day hybrid program provides a valuable opportunity to enhance your expertise in radiation protection and risk management. The IAEA is proud to support the International Nuclear Science and Technology Academy (INSTA) and is committed to working together to ensure the success of INSTA schools. Motivating and empowering educators is crucial for sustaining human resources in harnessing the benefits of nuclear science and technology (NST), ensuring that the next generation is well-equipped to meet global challenges. Wishing all participants a productive and collaborative experience.

Supporters / Speakers at Ceremony

UTokyo



Prof. Nobuto SAITO

Executive Vice President
The University of Tokyo

UTokyo



Prof. Toshiharu KISHI

Executive Director, Vice President
Director General, Division for
Environment, Health and Safety,
The University of Tokyo

UTokyo



Ms. Takako HOSOYA

Deputy Director General
Division for Environment,
Health and Safety
The University of Tokyo

NPO STIF



Mr. Tominori SUZUKI

President
Science and Technology
Information Forum

MOFA



Mr. Kenichiro TANAKA

Director
International Nuclear
Cooperation Division,
Disarmament, Non-Proliferation
and Science Department,
Ministry of Foreign Affairs

MEXT



Mr. Taku KAWAHARA

Director
International Nuclear
Cooperation, Research and
Development Bureau, Ministry
of Education, Culture, Sports,
Science and Technology

INSTA



Dr. Yaser KASESAZ

INSTA WG3-Head
Atomic Energy Organization of Iran

IAEA



Prof. Helena ZHIVITSKAYA

Technical Officer, Knowledge
Management Specialist,
International Atomic Energy Agency

Schedule

March, 2025

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
2	3 DAY1 (1) Opening ceremony JVET (2) Lecture Prof. IIMOTO (3) Lecture Prof. EKHTIAR	4 DAY2 (1) Lecture Dr. SASAKI (2) Lecture Asst.Prof. AL-AZRI (3) Lecture Assoc. Prof. SAENGKAEW Dr. PLOYKRACHANG	5 DAY3 (1) Lecture Prof. YASUDA (2) Lecture Dr. HASAN (3) Lecture Assoc.Prof. KHOO	6	7 (1) 15:30-16:30 (2) 16:45-17:45 (3) 18:00-19:00 [JST]	8
9	10 DAY4 (1) Lecture Asst. Prof. IGARASHI (2) Lecture Prof. SAITO (3) Lecture Prof. IIMOTO	11 DAY5 (1) Lecture Dr. BELMONTE (2) Lecture Dr. SAKODA (3)Test & closing for virtual JVET	12-19	20 DAY X Arrival at Tokyo, Japan	21 DAY6 AM Welcome ceremony, Guidance, Response lecture PM Participant presentations (15min/participant)	22
23	24 DAY7 All Analytical understanding of radiation behavior -PHITS training Dr. OGAWA	25 DAY8 All Site-Visit; JCAC for environmental monitoring	26 DAY9 AM Group discussion PM Site-Visit; Police/Fire sta. Prof. IIMOTO	27 DAY10 AM Risk Management Assoc.Prof. RAHMAN Prof. HAYASHI PM Asst. Prof. SHUHARA Group discussion & task, Site-Visit; MALT Prof. MATSUZAKI	28 DAY11 AM Group presentations (20min/group) PM UTokyo/JVET presentations and Closing ceremony	29 DAY Y Leaving Japan

Lecturer and Theme

Lecture No.	Lecturer	Title	Organization	Theme	
DAY1-5:Online mode					
1	Takeshi IIMOTO	Prof.	The University of Tokyo	RP Scope and World -its infinite possibility as an education theme	
2	Adnan EKHTIAR	Prof.	Syrian Atomic Energy Commission	Radiobiology	
3	Michiya SASAKI	PhD	Central Research Institute of Electric Power Industry	Radiation epidemiology	
4	Harith M. AL-AZRI	Asst Prof.	University of Nizwa	Nuclear physics, radiation physics and chemistry	
5	Phanee SAENGKAEW Kamontip PLOYKRACHANG	Assoc. Prof. PhD	Chulalongkorn University	Radiation measurements	
6	Hiroshi YASUDA	Prof.	Hiroshima University	Radiation units	
7	Md Mahamudul HASAN	PhD	The University of Tokyo	Dosimetry and Dose estimation	
8	Kok Siong KHOO	Assoc. Prof.	The National University of Malaysia	RP in Safety and Security	
9	Yu IGARASHI	Asst Prof.	The University of Tokyo	RP in planned and emergency exposure situation	
10	Takumi SAITO	Prof.	The University of Tokyo	RP for radioactive wastes	
11	Takeshi IIMOTO	Prof.	The University of Tokyo	RP in existing exposure situation	
12	Zachariah John BELMONTE	PhD	Technological University of the Philippines	Risk communication in RP	
13	Akihiro SAKODA	PhD	Japan Atomic Energy Agency	RP for NORM	
14	Tatsuhiko OGAWA	PhD	Japan Atomic Energy Agency	Analytical understanding of radiation behavior - PHITS training-	
15	Anita ABD RAHMAN	Assoc. Prof. MD, PhD	Universiti Putra Malaysia	Integration of thinking with other disciplines related to risk management	Medical Risk
16	Rumiko HAYASHI	Prof.	Tohoku University		Chemical Risk
17	Ai SHUHARA	Asst. Prof.	The University of Tokyo		General Risk

INSTA Spring School 2025 Japan

Opening Ceremony

AGENDA

Date and Time : March 3rd, 2025, 1530-1630(JST)

Style: Remote mode

MC: Dr. MD Mahamudul HASAN
Project Researcher, UTokyo

Opening
Declaration Ms. Rieko TAKAKI
TEWS2025JPN Secretariat, JVET

Welcome
Address-1 Ms. Marina binti MISHAR
Section Head 2, Technical Cooperation Division for Asia and the
Pacific, International Atomic Energy Agency (IAEA)

-2 Prof. Nobuto SAITO
Executive Vice President, The University of Tokyo (UTokyo)

Purpose of
WS Prof. Takeshi IIMOTO
Host of TEWS2025JPN, JVET, The University of Tokyo(UTokyo)

Photo

開会式典

次第

日時: 2025年(令和7年)3月3日(月) 15時30分-16時30分

形式: 遠隔開催

進行 東京大学 特任研究員
エムディー マハムドゥル ハサン

開会宣言 TEWS2025JPN 事務局、JVET
高木 利恵子

歓迎挨拶-1 国際原子力機関 技術協力局アジア太平洋部アジア太平洋第二課長
マリナ・ビンティ・ミシャー

-2 東京大学 理事・副学長
齊藤 延人

開催主旨 TEWS2025JPN 代表、JVET、東京大学
飯本 武志

写真撮影

INSTA Spring School 2025 Japan Welcome Ceremony

AGENDA

Date and Time : March 21st, 2025, 1000-1100(JST)

Venue: Main Building 12th Floor Conference Room, UTokyo

MC: Ms. Rieko TAKAKI
TEWS2025JPN Secretariat, JVET

- | | |
|---------------------|--|
| Opening Declaration | Dr. Yu IGARASHI
Project Assistant Professor, The University of Tokyo (UTokyo) |
| Welcome Address-1 | Dr. Irman ABDUL RAHMAN
Chair, INSTA Steering Committee
Associate Professor, National University of Malaysia <Remote> |
| -2 | Prof. Toshiharu KISHI
Executive Director, Vice President
Director General, Division for Environment, Health and Safety,
The University of Tokyo (UTokyo) |
| -3 | Mr. Kenichiro TANAKA
Director, International Nuclear Cooperation Division,
Disarmament, Non-Proliferation and Science Department,
Ministry of Foreign Affairs(MOFA) |
| -4 | Mr. Taku KAWAHARA
Director, International Nuclear Cooperation,
Research and Development Bureau,
Ministry of Education, Culture, Sports, Science and
Technology(MEXT) |

Photo

INSTA Spring School 2025 Japan

歓迎式典

次第

日時: 2025年(令和7年) 3月21日(金) 10時00分-11時00分

場所: 東京大学 本部棟12階 大会議室

進行 TEWS2025JPN 事務局、JVET
高木利恵子

開会宣言 東京大学 特任助教
五十嵐 悠

歓迎挨拶-1 INSTA委員長、マレーシア国立大学 (※遠隔)
イルマン・アブドル・ラーマン

-2 東京大学 執行役・副学長
岸 利治

-3 外務省 軍縮不拡散・科学部国際原子力協力室 室長
田中 健一郎

-4 文部科学省 研究開発局 企画官(原子力国際協力担当)
河原 卓

写真撮影

INSTA Spring School 2025 Japan

Closing Ceremony

AGENDA

Date and Time : March 28th, 2025, 1630-1700(tentative, JST)

Venue: Engineering Bldg. 2, Room 212, UTokyo

MC: Dr. Hiromi KOIKE
Project Assistant Professor, UTokyo

- | | |
|---------------------|--|
| Closing Address-1 | Ms. Takako HOSOYA
Deputy Director General, Division for Environment, Health, and Safety, The University of Tokyo (UTokyo) |
| -2 | Mr. Tominori SUZUKI
President, Science and Technology Information Forum (NPO) |
| -3 | Dr. Yaser KASESAZ
INSTA WG3-Head, Atomic Energy Organization of Iran <Remote> |
| -4 | Prof. Helena ZHIVITSKAYA
Technical Officer, Knowledge Management Specialist,
International Atomic Energy Agency (IAEA) |
| Closing Declaration | Prof. Takeshi IIMOTO
Host of TEWS2025JPN, JVET, The University of Tokyo(UTokyo) |

Photo

閉会式典

次第

日時: 2025年(令和7年) 3月28日(金) 16時30分-17時00分(予定)

場所: 東京大学工学部2号館212室

進行 東京大学 特任助教
小池弘美

- | | | |
|--------|--|-------------|
| 閉会挨拶-1 | 東京大学環境安全本部 副本部長 | 細谷 孝子 |
| -2 | NPO法人科学技術情報フォーラム 理事長 | 鈴木 富則 |
| -3 | INSTA WG-3長、イラン原子力機構 (※遠隔) | イエーサー・カゼサズ |
| -4 | 国際原子力機関 原子力エネルギー局企画情報知識管理部原子力知識管理課 知識管理専門官 | ヘレナ・ツイヴィツカヤ |
| 閉会宣言 | TEWS2025JPN 代表、JVET、東京大学 | 飯本 武志 |

写真撮影

Lecture 1

Radiation Protection Scope and World

-its infinite possibility as an education theme-



Takeshi IIMOTO

Professor / PhD

Division for Environment, Health and Safety, The University of Tokyo

<http://iimoto-kankyoanzen.adm.u-tokyo.ac.jp/>



Keywords

radiation, radiation protection, NORM, STEAM, WOW factor, safety and security, risk management and communication, radiation measurements, dosimetry, radiation protection system and exposure situations, radioactive wastes

He is a professor of The University of Tokyo and the Radiation Safety Promotion Manager (RSPM) of the entire university, leading total activities on the safety culture improvement. He was the former vice-president of Japan Health Physics Society, and Editor in Chief of Journal of Radiation Protection Research (JRPR), co-operated by RP societies in Korea, Australasia and Japan. In addition, he is one of the expert members in several national committees or meetings of Japanese government for radiation protection and safety as well as for human resource development in the field of nuclear science and technology. He has been one of the international experts involved in some technical cooperation programs since 2012 of IAEA and shared his wide knowledge and his experiences in the radiation protection field with participant countries in the Asia Pacific region. He is the local host and Course Director of INSTA TEWS 2025 JPN as well as the coordinator of JVET (Japanese Volunteers Expert Team).

Lecture 2

Radiobiology



Adnan EKHTIAR

Professor / PhD

Department of Molecular Biology and Biotechnology. Flow Cytometry lab. Syrian Atomic Energy Commission, Damascus, Syria

<http://aekhtiar@aec.org.sy/>



Keywords

Ionizing radiation, Effects, molecular and cellular level, Deterministic Effects, Stochastic somatic effects, Stochastic hereditary effects, Effects on the embryo and foetus, Epidemiology, radiation detriment.

He is a professor of Syrian Atomic Energy Commission, Damascus, Syria. Bachelor of Science, Damascus University - Faculty of Science, Biochemistry 1985. MSc in Biochemistry, Institute of Veterinary Medicine, Leningrad, USSR - 1988. PhD in Radiobiology, Petersburg Nuclear Physics Institute «Kurchatov Institute», Russian Academy of Sciences, St. Petersburg - 1993, Russian Federation. He is Director of Research, Syrian Atomic Energy Commission, Head of Flow Cytometry Laboratory-Molecular Medical Biology Division. Lecturer: Radiobiology course in regional courses, Radiation Protection and Safety of Radioactive Sources, 1997-1999. Lecturer: PART III "BIOLOGICAL EFFECTS OF IONIZING RADIATION", IAEA-PGEC, 2000-2011, Syria (in Arabic). Lecturer: PART III "BIOLOGICAL EFFECTS OF IONIZING RADIATION"- IAEA-PGEC, 2021-2024, Jordan (in Arabic). Lecturer: Radiation and Biological Effects Course, Department of Environmental Sciences, Faculty of Science, Damascus University, 2011-2023. Lecturer: Radiation Biology course in the MSc in Medical Physics, 2012-2024. Research activity: Study of the effect and modification of the effects of ionizing radiation, at the cellular and molecular levels, Study of the impact of occupational exposure to radiation and toxic environmental factors and Biodosimetry.

Lecture 3

Radiation epidemiology



Michiya SASAKI

PhD

Biology and Environmental Chemistry Division,
Sustainable System Research Laboratory,
Central Research Institute of Electric Power Industry

<https://criepi.denken.or.jp/>



Keywords

radiological protection, epidemiology, excess relative risk, excess absolute risk, dosimetry, atomic bomb survivors, risk estimation, risk models, risk transfer, nominal risk coefficient, radiation detriment, tissue weighting factor, effective dose

He is a senior research scientist in the Biology and Environmental Chemistry Division, Sustainable System Research Laboratory, Central Research Institute of Electric Power Industry (CRIEPI) of Japan, and is currently working on research related to radiation risk assessment and optimization in radiological protection. He previously worked at the Scientific Secretariat of the International Commission on Radiological Protection (ICRP) in Ottawa from 2012 to 2014. He has been serving as the managing director and chair of the international correspondence committee of the Japan Health Physics Society (JHPS) since 2019. He worked as a secretary for Task Group (TG) of JHPS on low-dose and low-dose rate radiation risk estimation methodology from 2016 to 2018. He also worked as a chair for TG of JHPS on the development of a calculation code of cancer risk due to radiation exposure from 2020 to 2022. He is Vice-President of the JHPS from 2023, and a member of executive council of the International Radiation Protection Association (IRPA) from 2024.

Lecture 4

Nuclear physics, radiation physics and chemistry



Harith AL-Azri

Assist Professor / PhD

Department of Mathematical and Physical Sciences, College of Arts and Sciences, The University of Nizwa, Sultanate of Oman

<https://www.researchgate.net/profile/Harith-Al-Azri>



Keywords

Nuclear Physics, Nuclear Structure, Gamma Spectroscopy, nuclear Reactions, radiation, radiation protection, NORM, risk management, radiation measurements, dosimetry, radiation protection system and radiation detectors, radioactive wastes, Environmental radioactivity.

He is an Assistant professor at The University of Nizwa, Sultanate of Oman. He was the former Acting dean and Assistant dean in many colleges in the country before he moved to the University of Nizwa where he is the HoD. He obtained his MSc in Radiometrics from the university of Liverpool, UK on 2005 and hid PhD in nuclear structure physics at the university of York, UK on 2012. He has long standing experience in the field of nuclear physics and radioactivity, the experience which resulted on participating in publishing many research papers, talking in conferences, conducting many workshops in nuclear and radiation physics. He participated in many nuclear physics experiments in Europ in GANIL, France and university of Jyvaskla, Finland. Currently he is running many projects in **Environmental radioactivity measurments and Radon-222 measurments**. He has been one of the international experts involved in some technical cooperation programs since 2020 of IAEA and shared his wide knowledge and his experiences in the radiation protection field with participant from different countries. He is teaching npw many courses in physics and nuclear physics.

Lecture 5

Radiation Measurement



Phannee SAENGKAEW

Assoc.Professor /PhD

<https://ne.eng.chula.ac.th/wp/index.php/people/phannee-saengkaew/>



Kamontip PLOYKRACHANG

Lecturer /PhD

<https://ne.eng.chula.ac.th/wp/index.php/people/kamontip-ploykrachang/>

Department of Nuclear Engineering, Chulalongkorn University

Keywords

- Radiation measurements,
- Radiation detectors,
- Gamma-, beta-, alpha-spectrometry,
- Neutron Detection,
- Radiation Safety

Dr.Saengkaew is an Associate Professor of Nuclear Engineering in the Department of Nuclear Engineering at Chulalongkorn University, Thailand. Her research areas include the development of radiation detection materials, materials modification and characterization by nuclear technology, and the outreach development of nuclear physics and technology.

Dr.Ploykrachang is a Lecturer of Nuclear Engineering in the Department of Nuclear Engineering at Chulalongkorn University, Thailand. Her research interests include developing nuclear instruments and detection systems for industrial applications.

Lecture 6

Advanced understanding of radiation units

-Protection from various radiation sources-



Hiroshi YASUDA

Professor / PhD

Department of Radiation Biophysics, Research Institute for Radiation Biology and Medicine, Hiroshima University

<https://seeds.office.hiroshima-u.ac.jp/profile/en.8b44ff1859dd3d61520e17560c007669.html>

Keywords

radiation measurements, radiological protection dosimetry, , cosmic radiation dosimetry, radiological emergency responses, retrospective dose assessment, environmental impact analysis, radiological health risk projection, radiation education

Prof. Yasuda is a scientist in the field of radiation measurements, radiological protection, retrospective dose assessment, cosmic radiation dosimetry, health risk analyses, environmental impact analyses and so on. He has published more than 200 scientific articles and more than 80 reviews/books. He has been working as experts for various international bodies such as United Nations, IAEA, ISO, ICRP, EURADOS and many national bodies such as Nuclear Regulation Authority, Ministry of the Environment, Ministry of Education, Culture, Sports, Science and Technology. He worked as a project manager for the UNSCEAR 2013 Report on the effects of the Fukushima Daiichi accident, co-author of ICRP Publication 132 'Radiological Protection from Cosmic Radiation in Aviation' (2016), etc. Currently, he is a rapporteur of ISO/TC85/SC2/WG21 'Dosimetry for exposures to cosmic radiation in civilian aircraft', and members of many international and domestic committees relevant to radiation safety and radiological protection.

Lecture 7

Dosimetry and Dose Estimation



Md Mahamudul HASAN

Project researcher / PhD

Division for Environment, Health and Safety, The University of Tokyo

<http://iimoto-kankyoanzen.adm.u-tokyo.ac.jp/>



Keywords

Radiation exposure, radon and thoron, NORM, environmental dynamics, radiation protection, chemical toxicity, occupational and public exposure, Bangladesh, lung cancer

Dr. Hasan is a project researcher at Division for Environment, Health and Safety at The University of Tokyo (UTokyo). Concurrently, he is a member of the Iimoto laboratory at UTokyo. His expertise is environmental dynamics assessment of natural radionuclides and human dose calculation. Through large-scale environmental surveys, he developed a systematic research framework of radon, thoron, and gamma radiation for Bangladesh. Dr. Hasan's motivation is to develop effective countermeasures for radiation exposures in Asian dwellings, for which international collaborative research are in progress. He completed several Japanese government-funded research projects as the principal investigator, PI. In addition, he completed several research projects on industrial/chemical exposure to humans due to environmental pollution in Bangladeshi leather industries. He is a young expert in expanding the radiation protection framework to Bangladesh; he previously worked as the junior expert leader in arranging the previous TTWS program.

Lecture 8

Radiation Protection in Safety and Security



Kok Siong KHOO

Assoc. Professor / PhD

Nuclear Technology Research Centre, Faculty of Science and Technology, The National University of Malaysia (UKM)

https://ukmsarjana.ukm.my/main/lihat_profil/SzAxNDY4NA==



Keywords

Radiological impact assessment, radioactive waste management (NORM, TENORM), neutron activation analysis (k0-INAA), reactor technology, environmental radiation monitoring, toxic and hazardous waste, occupational radiation exposure, radionuclide containment, heavy metal waste management.

He has made significant contributions to radiation protection in both safety and security through his extensive research in radiological impact assessment, particularly following nuclear accidents like Fukushima. His work on managing radioactive waste, including NORM and TENORM, ensures the safe handling, storage, and disposal of hazardous materials. Additionally, his studies on radionuclide containment, using materials like palm oil fuel ash to confine elements such as radium and caesium, enhance the long-term security of radioactive waste management. His research on occupational radiation exposure, particularly concerning uranium and thorium residues, supports the development of safety protocols to protect workers in radioactive environments. Moreover, his efforts in environmental radiation monitoring, including assessing natural radioactivity and radiation hazard indices in soil, help identify and mitigate public radiation risks, contributing significantly to overall radiation safety and environmental protection.

Lecture 9

RP in planned and emergency exposure situation



Yu IGARASHI

Project Asst. Prof. / PhD

Environment, Health and Safety office, Graduate School of Medicine and Faculty of Medicine, The University of Tokyo

<https://researchmap.jp/igarashi.yu>



Keywords

radiation, radiation protection, exposure situations, planned exposure, emergency exposure, worker, public, public exposure, occupational exposure, dose constraint, reference level, dose limit,

He is a project assistant professor of the Environment, Health and Safety office, Graduate School of Medicine and Faculty of Medicine, The University of Tokyo. His main responsibilities are chemical materials management, general safety management of faculty members and emergency response.

He has the experience of worker individual exposure monitoring, environmental radiation monitoring and emergency response at nuclear facilities. His research topics are; understanding the situation of internal exposure in the nuclear emergency including the Fukushima Daiichi nuclear power plant accident, safety education for X-ray users and safety managers to prevent the exposure accident, and developing of risk literacy pedagogy and radiation protection system for the Naturally Occurring Radioactive Materials.

Lecture 10

Radiation Protection for Radioactive Wastes



Takumi SAITO

Professor / PhD

Nuclear Professional School, School of Engineering, The University of Tokyo

<http://park.itc.u-tokyo.ac.jp/saitolab/>



Keywords

geochemistry, radioactive wastes, geological disposal, groundwater and contaminant transport modeling, environmental behavior, advanced spectroscopy

He is a professor at Nuclear Professional School, School of Engineering, the University of Tokyo. He had original education in nuclear engineering, but his expertise is chemistry, in particular geochemistry and physical chemistry. He works in the field of nuclear waste disposal and its safety assessment with special focuses on environmental behaviors and transport of radionuclides in various environments including subsurface environments. He does both experiments and simulations and both laboratory works and field studies.

Lecture 11

Radiation Protection in Existing Exposure Situation



Takeshi IIMOTO

Professor / PhD

Graduate School of Frontier Sciences, The University of Tokyo

<https://envsys.k.u-tokyo.ac.jp/en/labs/index.html#lab10>

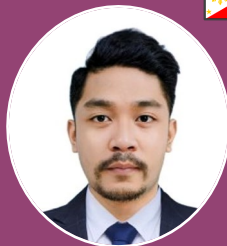
Keywords

existing exposure situation, natural and man-made sources, reference level, cosmic radiation, radon, NORM, contaminated sites and areas, stakeholders, RP culture, public and occupational exposures, environmental exposure, ALARA, optimization

He is a professor, hosting Laboratory of Environmental Safety Management, Department of Environment Systems, Graduate School of Frontier Sciences, The University of Tokyo. The research field "Environmental Safety Management" covers all studies on safety and risk management, mainly in radiation environments. He pursues the studies from the viewpoints of both natural and social sciences. The main research targets are: Development of methods for radiation measurement and dosimetry/Study of safety measures for radiation applications and the management of radioactive waste materials /Study on natural radiation environments and naturally occurring radioactive materials/ Study on environmental protection and environmental assessment on radiation /Study on risk management and risk communication, etc. The research themes are selected from timely discussion points and needs relating to activities of IAEA, UNSCEAR, ICRP and regulatory science in Japan.

Lecture 12

Risk communication in Radiation Protection



Zachariah John BELMONTE

Asst. Professor / PhD

Mechanical Engineering and Allied Department, Technological University of the Philippines

<https://iimoto-kankyoanzen.adm.u-tokyo.ac.jp/member>

Keywords

radiation, radiation protection, NORM, STEAM, WOW factor, safety and security, risk management and communication, radiation measurements, dosimetry, radiation protection system and exposure situations, radioactive wastes

Dr. Belmonte is an Assistant Professor at the Technological University of the Philippines (TUP) and currently serves as the President of the Alumni Association and holds a position as a board member of TUP under the Philippine Commission on Higher Education. He is researcher member at the IIMOTO Laboratory since 2023.

In addition to his academic roles, He is an expert member of several national committees in the Philippines, focusing on risk communication and advancements in nuclear science, technology, and education. Since 2019, he has contributed as an international expert in technical cooperation programs, including the Annual Reactor Engineering Follow-up Training Course, in partnership with the Philippine Nuclear Research Institute and JAEA-NuHRDeC.

His research, focused on nuclear education and risk communication, has been invited several times as speaker and recently, he presented the importance of Multigenerational Approach in Nuclear Safety and Risk Communication. Following his researchers exchange program at the University of Tokyo, he is currently engaged in a study examining risk communication and the safety policies and regulations related to Naturally Occurring Radioactive Materials (NORM) in the Philippines

Lecture 13

Radiation Protection for Naturally Occurring Radioactive Materials (NORM)



Akihiro SAKODA

Principal researcher / PhD

Ningyo-toge Environmental Engineering Center, Japan Atomic Energy Agency

https://researchmap.jp/akihiro_sakoda?lang=en
<https://www.researchgate.net/profile/Akihiro-Sakoda>

Keywords

NORM
Radiation protection
Exposure situations and categories
Justification and optimization
Dose assessment

He has been working as a scientist at Ningyo-toge Environmental Engineering Center, Japan Atomic Energy Agency (JAEA) since 2010. This center is now engaged in the decommissioning of uranium facilities and the management of closed uranium mines and related facilities. In this context, his research interest has focused on environmental radioactivity, investigating the fate of natural radionuclides, especially radon isotopes, such as generation, migration, exposure, and health and environmental effects.

He is currently an editorial board member of the Journal of Radiation Protection Research (JRPR) and a board member of the Asian and Oceanic Radon Association (AORA). He was also involved in international and national activities, including a secretary of the Young Generation Network of the International Radiation Protection Association (IRPA YGN) and a board member of the Japan Health Physics Society (JHPS).

Lecture 14

Analytical understanding of radiation behavior - PHITS training -



Tatsuhiko OGAWA

PhD

Research Group for Radiation Transport Analysis,
Japan Atomic Energy Agency

<https://nsec.jaea.go.jp/ers/radiation/en/rpro/index.htm>

Keywords

radiation physics,
radiation protection,
radiation measurement,
accelerator facilities,
international tutorials,
Monte-Carlo calculation,
code development,
nuclear data,
computation,

He is a researcher at Japan Atomic Energy Agency.

At the Graduate School of Engineering, University of Tokyo, working as an intern at Stanford Linear Accelerator Center (currently SNAL) and at European Organization for Nuclear Research (CERN), he was certified as Ph.D. Entering Japan Atomic Energy Agency as a Post-doctoral fellow, he became tenured researcher in 3 years.

Except 1 year of sabbatical at French Atomic Energy Commission (Commissariat à l'énergie atomique et aux énergies alternatives, CEA), he works as a member of the research group for radiation transport analysis at JAEA.

He is one of the lecturers of INSTA TEWS 2025 JPN.

Lecture 15

Integration of thinking with other disciplines related to risk management – Medical Risk -



Anita ABD RAHMAN

Assoc Prof/ MD, PhD

Faculty of Medicine and Health Sciences, Universiti Putra Malaysia

<https://profile.upm.edu.my/anitaar/main.html>

Keywords

Medicine, public health, radiation EPR, risk governance, health effects, acute and chronic exposure

She is an Associate Professor in the Department of Community Health, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia. She has more than 25 years of working experience with the first 10 years in the Ministry of Health, Malaysia. Since becoming an academician, her passion has been in the field of Occupational & Public Health, Radiation Emergency Preparedness and Response, Risk Governance as well Non-Ionising Radiation. She is also a Fellow of the Academy of Occupational and Environmental Medicine Malaysia and has been appointed few times as an independent expert by the International Atomic Energy Agency (IAEA) focusing on Radiation Protection, NST education for secondary and tertiary level. The INSTA EPE is instrumental to her as she is also one the instructors in Phase 1.

Lecture 16

Integration of thinking with other disciplines related to risk management – Chemical Risk -



Rumiko HAYASHI

Professor / PhD

Center for Environmental Conservation and Research Safety, Tohoku University

<https://researchmap.jp/rumikohayashi?lang=en>

Keywords

chemical safety, safety education, Risk assessment and management, STEAM, environmental management, waste management, waste treatment, accident information analysis, chemical engineering

She is a professor at Tohoku University from October 2024 and involved in university-wide safety management and chemical substance management. In 2009, she was appointed assistant professor at Division for Environment, Health and Safety, the University of Tokyo. Since 2016, she was an associate professor at Environment, health and safety office in Nagoya University. Since 2020, she was deputy director of the office. She was involved in university-wide chemical substance management and environmental management, as well as in safety education regarding chemical substances. She serves as a director of the Specified nonprofit organization Research for Environment, Health and Safety Education, a member of various review committees at the High Pressure Gas Safety Institute of Japan, and a member of the Toyota Project Subcommittee of the PCB Waste Treatment Exploratory Committee of Japan Environmental Storage & Safety Corporation, among other committees related to environmental safety and chemical substance management.



Ai SHUHARA

Assist. Professor / PhD

Graduate School of Frontier Sciences, The University of Tokyo

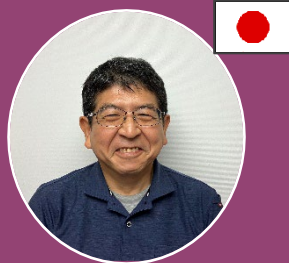
<https://researchmap.jp/aishuhara>



Keywords

Environment and safety education,
Risk education,
Safety awareness analysis,
Behavior analysis,
Image analysis,
Natural language analysis,
Foreigner safety education,
Environment and safety management

She is an Assistant Professor at the Graduate School of Frontier Sciences, The University of Tokyo. She is engaged in research activities related to "Laboratology," such as hazard prediction and safety indicator extraction in university laboratories, while also being responsible for education and management related to overall environment and safety within the department. Specifically, she has established safety education courses across various fields, developed educational materials, and conducted lectures and practical training sessions. Additionally, she launched an environment and safety education project aimed at the university's internationalization, developing educational materials tailored to the needs of international students, and contributing to the training of specialists in the field of environmental safety. She also serves as a special committee member for the Ministry of Education, Culture, Sports, Science and Technology (MEXT) regarding radiation education, where she is involved in developing teaching materials to support school teachers in Japan.



Yuji OHTA

Director / Fellow

Technology Strategy Headquarters , Japan Chemical Analysis Center

<https://www.jcac.or.jp/>

Keywords

Radiation, NORM, radiation measurements, dosimetry, radiochemical analysis, trace element analysis, environmental radiation database, intercomparison analysis, proficiency testing, radioactivity analysis/measurement training

He is Fellow of Japan Chemical Analysis Center(JCAC).After receiving his Master's degree from Niigata University, he joined JCAC in 1988.He worked for the Ministry of Education,Culture,Sports,Science and Technology from 2001 to 2003. From 2003 to present. Experience:Gamma-ray spectrometry,Radiochemistry, Management of database system,Lecturer for training courses of radioactivity analysis. After 2011 Fukushima Daiichi Nuclear Plant accident, engaged in gamma-ray measurement of environmental samples including foodstuffs,and training programs for engineers newly assigned to radioactivity measurement.

JCAC was established in 1974 as a specialized institute for radioactivity analysis. JCAC performs radioactivity analysis of environmental samples. JCAC contributes to efforts to ensure the reliability of environmental radioactivity monitoring in Japan. JCAC has obtained ISO/IEC 17025 accreditation, which is the standard for analytical competence of testing laboratories. It has also obtained ISO/IEC 17043 accreditation, which is the competence standard for proficiency testing.

JCAC Business Overview

Analysis and Measurement

◆ Analysis/measurement of environmental radioactivity

① Analysis of radioactive nuclides

- Measurement by Ge semiconductor detector : gamma-ray emission nuclides
- Radiochemical analysis : Tritium, Carbon-14, Strontium-89/90, Iodine-129, Radium-226, Polonium-210, Thorium, Uranium, Plutonium, Americium , Curium
- Trace Element Analysis (ICP-MS) : Uranium, Thorium, Plutonium
- Radioactive Noble Gas Analysis : Krypton-85, Xenon-131m, 133, 133m, 135

② Dose measurement (air radiation dose rate)

③ Collecting and managing data

Operation and management of Environmental Radiation Database
" Environmental Radioactivity and Radiation in Japan"

Precision Control

- ◆ Intercomparison analysis ◆ Proficiency testing
- ◆ Calibration of radiation measuring instruments
- ◆ Providing standard sample

Education and Training

◆ Environmental radioactivity analysis/measurement training

① Training for prefectural monitoring organizations

② Training for general institutions

- ◆ Stable isotope analysis training ◆ Contract training ◆ On-site training

Tour on Mar.25, Schedule & Menu

10:00-12:00 Lectures

- Company introduction
- Environmental monitoring in Japan

12:00-13:30 Lunch

13:30-15:00 Site tour

- Sample pretreatment
- Radiation measurement
- Spectral analysis
- Air dose measurement, etc.

15:00-15:30 Q&A

15:30 Leave JCAC



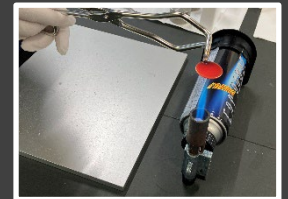
Pretreatment of biota samples



Seawater pretreatment



Pretreatment of Tritium



Red-heating after electrodeposition



Separation with ion exchange method



Electrolytic enrichment of Tritium



Counting(Measuring) samples for Tritium



Counting(Measuring) samples for gamma-ray spectrometry



High purity Ge semiconductor detectors



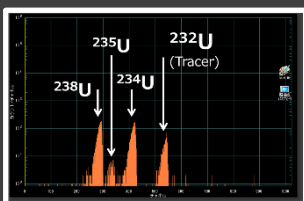
Liquid scintillation counters



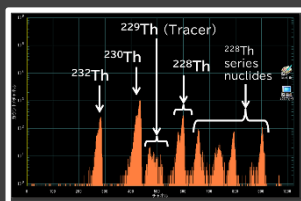
Si semiconductor detectors



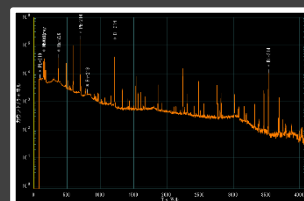
Dose rate meters



alpha-ray spectrum of Uranium isotopes



alpha-ray spectrum of Thorium isotopes



gamma-ray spectrum



Accelerator (MALT) and Museum of UTokyo



Hiroyuki MATSUZAKI

Professor / PhD

Micro Analysis Laboratory, Tandem accelerator, The University Museum, The University of Tokyo

<https://malt.um.u-tokyo.ac.jp/~hmatsu/>

Keywords

Ion beam, Accelerator Mass Spectrometry, Electrostatic accelerator, Environmental analysis, Iodin isotope system, Uranium-236, Anthropocene, Anthropogenic nuclides, Cosmogenic nuclides, Ion beam analysis, Ion-material interaction, Ion-photon interaction

He is a professor/head managing Micro Analysis Laboratory, Tandem accelerator (MALT), The University Museum, The University of Tokyo. He also contribute education as a professor of Department of Nuclear Engineering and Management, School of Engineering, The University of Tokyo. His major is ion beam analysis using tandem electrostatic accelerator, especially Accelerator Mass Spectrometry (AMS). Since he designed a gas ionization chamber for the final detector of AMS in 1998, which has been used as a main detector at MALT until now, he has tried to make MALT an actual multi-nuclides AMS facility not only in a sense that multiple nuclides can just be measured but also that various applications are widely conducted using multiple nuclides. He introduced the in situ CRN applications at MALT inviting morphologists since 2002. He had developed Iodine 129 method and expanded applications using 129I especially after 2011 disaster. Blessed with excellent students/collaborator, various application studies using 129I had been conducted and recently 236U-AMS system had been developed and apply to oceanography study. A novel technique to expand the possibility of AMS are also his interest. He is also conducting fundamental experiments for the interaction between laser light and negative ions.

MALT

(Micro Analysis Laboratory, Tandem accelerator, The University of Tokyo), Bunkyo, Tokyo

