

# Newsletter

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### What is U-ATOM?

The Academy for Global Nuclear Safety and Security Agent is running a "boarding school with a new and unique nuclear education (DOJO for Global Nuclear Safety and Security)." U-ATOM is a combination of the capital letter of "Unique" and ATOM.



*International Symposium and Seminar*

From February 25, 2014 (Tues) to March 7, 2014 (Fri), an international symposium and seminar was held at the Tokyo International Exchange Center, Plaza Heisei in Odaiba on the themes of nuclear energy, security, and nuclear nonproliferation. This seminar was held with the purpose of developing global leaders who can lead nuclear energy program and cope with nuclear disasters. There were invited lecturers by experts from both inside and outside of Japan, followed by lively discussions between students.

### Plenary Session & Lecture Session

In the first part, there was a welcome message from Tokyo Institute of Technology President Mishima (proxy reading), and a welcome address given by the representative from cosponsor Texas A&M University. The opening remarks, the guest representative from the International Atomic Energy Agency (IAEA), followed. along with an opening address. After that, keynote speeches were delivered by the International Atomic Energy Agency, the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization, the French Ambassador in Japan, and the former Ambassador Endo of the Permanent Mission of Japan to the International Organizations in Vienna. Next, guest lectures and panel discussions were held regarding "the future of nuclear energy and nuclear nonproliferation," "nuclear energy education/training," "nuclear safety and security," and "the plutonium problem."

After that, pre-registered students attending the seminar (44 students including Dojo students) visited Hiroshima Memorial Park and the Monju fast breeder reactor, returned to Tokyo, and participated in the second part, "Seminar on Nuclear Security" and the third part, "Student Session."

In the second part, "Seminar on Nuclear Security" lectures were delivered on "nuclear security culture," "threats to nuclear security," "nuclear security risk analysis," "innovative nuclear security technology," "national border/port security," "transportation safety of nuclear materials," and more, along with lively discussions.

### Student Session

In the third part, "Student Session" special lectures (video lectures) were held by the former IAEA Deputy Director General and the U.S. Department of State's Coordinator for Threat Reduction Programs. Further lectures were given on the Fukushima Daiichi Nuclear Power Plant nuclear disaster with relevant analysis on safety culture. On the final day, each group of attending students summarized what they had learned at this seminar and performed presentations and discussions. The attendants from overseas, of course, also provided a valuable experience for the Dojo students.



## Field Education 1 HIROSHIMA



▲Hiroshima Peace Memorial Park

Four lecturers from overseas, students participating in the international seminar, and others participated in visiting the Radiation Effects Research Foundation and Hiroshima Peace Memorial Park. After hearing an explanation at the Radiation Effects Research Foundation of the estimation of the effects on human victims of nuclear bombs and of the research conducted from Chairman Toshiteru Okubo, participants then took a tour of the foundation's facilities. At Hiroshima Peace Memorial Park, participants viewed many exhibitions that allowed them to feel what it was like to walk around the city before and after the nuclear bomb dropped, as well as the horror of nuclear weapons. Participants also listened to a lecture from a survivor of the nuclear bomb who had been a second year elementary school student at the time of the bombing. Hiroshima's desire for the total abolition of nuclear weaponry and for the realization of permanent world peace was keenly felt by all attending.



▲Radiation Effects Research Foundation



▲Lecture by Nuclear Bomb Survivor

**Voice**  
First year  
doctor's course  
Takahiro MORI



The international seminar on nuclear was held for two weeks from the end of February to March. Many students who study nuclear participated from the foreign countries, and we discussed the problems of nuclear safety, security, and safeguards with domestic and foreign specialists. We also went to the Hiroshima Peace memorial Park and the fast breeder reactor Monju. We learned about the history and future of Japan related to nuclear power. We met a survivor of Hiroshima bombing and she told us the story of her experience. All of us learned the importance of international cooperation to achieve the peaceful use of nuclear energy together.

## Field Education 2 FUKUI



▲Monju Fast Breeder Reactor

After the briefing at Monju, the attendants divided into a Japanese group and a foreigner group and took a tour of the reactor. In the Sodium Handling Training Building, participants observed a tumbling granulator, combustion experiment facilities, fire extinguishing training facilities, and more, as well as experiencing a lump of sodium at room temperature being cut in the air with a knife. Participants toured the secondary cooling system pipe room where the 1995 sodium leak accident occurred, the air cooler room where decay heat removal is performed through natural circulation, the central control room, the simulator room, and more. It was a chance to think deeply about the future role of Monju and nuclear safety.

 FACILITIES EXPERIENCE OF  
MONJU FAST BREEDER REACTOR


▲Briefing



▲Visit and Observation

## Fieldwork in FUKUSHIMA

## Environmental radiation measurement

From March 20 to March 24, 2014, seven Dojo students, including two students from overseas, participated in the class of "environmental radiation measurement fieldwork" for five days in Fukushima prefecture. On the first day, students checked how to operate the three types of survey meters to be used (ionization chamber, Geiger-Müller tube, and sodium iodide scintillation) and the portable gamma ray spectrometer capable of identifying nuclides at the lodging facilities in Fukushima City which would be the base for the fieldwork. Afterwards, students took a written examination to check their comprehension. On days 2 to 4, all students used rent-a-cars for fieldwork by driving in Fukushima City, Date City, and Iitate-mura. The photo shows the scene of fieldwork near the front of the barricade in the difficult-to-return region inside Iitate-mura. Through their experiences, students were able to deepen their understanding of the difference in dosage rate by the influence of decontamination, topography, and other factors. On the final day, students visited the Environmental Radioactivity Monitoring Center of Fukushima Prefecture and the Japan Atomic Energy Agency's Sasakino Analysis Office in Fukushima City, where they observed the system for measuring trace amounts of radioactive nuclides in food and environmental samples and where they trained with a whole-body counter. Also, the students plan to identify nuclides and perform distribution measurements of the radioactivity and radioactive nuclides in the soil and plants that were brought back to the university as environmental samples soon.



▲Field work being performed



# Europe Study Tour

IAEA & CTBTO

Vienna University of Technology

CEA de Saclay

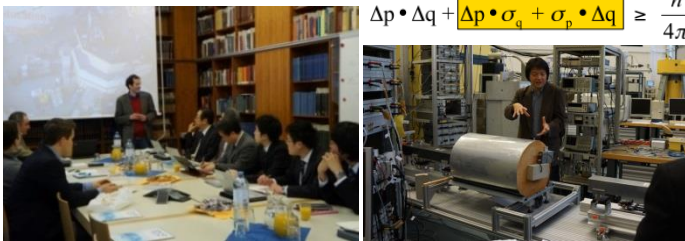
The education at U-ATOM is intended to develop leadership and competence, not only in nuclear science and engineering, but also for decision-making, both with an interdisciplinary and international perspective. To this end, the Academy provides opportunities such as one-year overseas internship/study, attendance at international seminars and overseas training and visits to cultivate our students' capacities to think and work globally. In line with this objective, seven Dojo students visited Europe on January 11th–19th with faculty members to learn the functions, activities and contemporary points of focus at a European reprocessor, international organizations, and educational institutes.

## IAEA / CTBTO



In Austria, the group visited the IAEA and the Preparatory Commission for CTBTO (Comprehensive Nuclear-Test-Ban Treaty Organization) in Vienna, where they were briefed on the activities in each department and on the special topic of the status of the post-Fukushima IAEA action plan. Intensive briefings were given on the topics of Leadership and Resilience management for nuclear accidents as well as on technology selection by newcomer countries.

## Vienna University of Technology



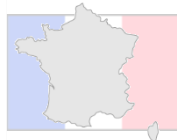
$$\Delta p \cdot \Delta q + \frac{\Delta p \cdot \sigma_q + \sigma_p \cdot \Delta q}{4\pi} \geq \frac{h}{4\pi}$$

To experience European educational environment and study results, they visited Atom Institute of Wien Technical University where the programme consisted of four parts; Professor Hasegawa's lecture on the use of Research Reactor to prove addition of uncertainty to Heisenberg's uncertainty principle, discussion of research topics from both side (Fukushima Lessons Learned, Fukushima decontamination, reactor physics calculation, nuclear knowledge management etc.), discussion with students, and tour to research reactor.

## LA Hague reprocessing facility, CEA Saclay, INSTN



In France, the group paid a visit to the AREVA La Hague facility to observe and learn about spent fuel storage and reprocessing. Visit to INSTN (National Institute for Nuclear Science and Technology) in Saclay was to learn education of nuclear science and engineering in France and in Europe, to discuss on the Fukushima-Daiichi Accident with ENEN students, and to visit research reactors operated by CEA Saclay.



## Voice

Second year  
master's course  
Kazuki NAKAHARA



...and

The Permanent Mission of Japan to the International Organizations in Vienna briefed on the mission's activities and the expected competence and expertise necessary to be qualified as staff members at international organs. A dozen Japanese staff members in the IAEA came to discuss their own activities during the daytime and after work. Students asked penetrating questions about matters such as post-IAEA career plans and the future of the IAEA. Students also had opportunities for cultural enrichment, visiting museums and churches, and attended a performance of Johann Strauß's A Night in Venice at Volksoper.



In Europe, I had many valuable experiences which I would not encounter in Japan such as, the visiting of a French nuclear power company AREVA, IAEA and CTBTO, and having discussions with ENEN students. Having never been abroad, I was anxious about this tour at first, however, I ended up having a wonderful time to deepen not only the knowledge of nuclear power in Europe but also my presentation skills in English. The experience of firsthand touch with French and Vienna cultures was a very marvelous moment for me.

## Other Events

## The DOJO Lecture

Since joining the Ministry of Foreign Affairs, Mr. Endo has had a close connection with the world's nuclear energy diplomacy for many years. In the Dojo lecture this time, he spoke from his wealth of experience on the theme of "nuclear energy and diplomacy." The students listened attentively and enthusiastically about the nuclear nonproliferation problem, international politics, and the 3 S (Security, Safety, and Safeguards) in the international framework. During the discussion period, there were lively questions and intense discussion.



## Science Cafe



## "What is the future of energy?"

On February 15 (Sat), while transportation was in disorder due to the heavy snowfall from the previous day, high school students gathered on campus and a science cafe with the theme of "What is the future of energy?" was held. This was an event where planning, management, progression, and everything else was handled by the students. The energy expert was able to present the facts objectively and urge discussion free of prejudice. It was good training for the students. From the elaborately prepared presentation and documents to the lively group discussions regarding the distinguishing characteristics of each form of energy, the science cafe was extremely well received by the high school students.



## Student Profile 2

## Takeshi AOKI



Originally, I belonged to Department of Mechano-Aerospace Engineering in Tokyo Institute of Technology and studied mechanical engineering in my undergraduate course.

It was 1 year after from Fukushima Accident that I began to consider the admission of Graduate School. With my knowledge of the accident and the situation of nuclear fields, I come to believe that nuclear technologies have high potentials and we should keep on nuclear technologies progressing to maintain a highly-developed world. Then the beliefs lead me to enroll in the Department of Nuclear Engineering and U-ATOM course. In this course, I study how we ensure safety of people and nuclear facilities, how we prevent the wrong use of nuclear technologies and how we act in the international nuclear field. So I would say we have very technical, political, ethical and international lectures here, along with oversea trainings and international discussions. Not every students can go through such experiences. The experiences must be fruitful for me to cultivate my expertise, international competitiveness and leadership. Eventually I will gain the knowledge how to handle nuclear technologies safely and securely in this U-ATOM course and hope to build a world that we don't need to worry about energy crisis any longer.

## Muhammad Husamuddin Bin Abdul Khalil



I am Muhammad Husamuddin Abdul Khalil, the Master's student of Nuclear Engineering Department of Tokyo Tech since April 2013 and I had set path to be accepted as the student of Academy for Global Nuclear Safety and Security Agent Tokyo Tech (DOJO Programme) beginning Oct 1st, 2013. I obtained Bachelor of Science Honours degree in Nuclear Science from National University of Malaysia (UKM) in 2005. Prior to that, I was an active student involving in several tennis competitions as the College tennis player and numbers of co-curricular and student activities while being appointed as Exco of Student Representative Council of the university. After graduation, I joined Sterilgamma (M) Sdn Bhd, a company operating Co-60 and ETO medical sterilization plant as the Technical Executive before one year later being promoted to Senior Executive cum Radiation Protection Officer of the company beginning Sept 2006. On Dec 24th, 2009 I joined Malaysian Nuclear Agency as the Research Officer where I had a short stint working experience at Reactor TRIGA Puspatti. Upholding the motto 'strive for a better tomorrow', I now belong to Igashira Laboratory (neutron science lab) with a project that tries to determine the neutron capture cross sections of LLFPs 126Sn and 135Cs in the keV neutron energy region. DOJO Programme has been accommodating me with the best nuclear education environment I have ever had in my life..

## Yan YOU



I'm You Yan, from China, now I'm second year graduate student affiliated with department of nuclear engineering. I love nuclear, but I initially wanted to study material engineering in Tokyo tech, but luckily I decided to choose nuclear engineering on the spur of the moment. I don't know if this is destiny, but I am sure I quiet enjoy it now.

I believe nuclear technology is a technology loaded with all world's peace, prosperity and hope. When we are enjoying our modern civilization, there are billions of people in developing world still burning wood, dung, only have a bulb at home. There will be a dramatic increase in energy demand associated with poverty reduction, and nuclear energy is the most hopeful energy to meet this increasing demand.

At present I'm studying on the lifetime extension of B4C ceramics, a kind of neutron absorbing materials for fast reactors, in Prof. Yano's laboratory. I feel deeply honored that I can work on this cause.



## Event Schedule

- ▼ April 27, 2014 - May 5, 2014 South Korea Training
  - ▼ August 2014 Nuclear Security Exercises
  - ▼ July 2014 Nuclear Reactor Severe Accident Simulation
  - ▼ September 2014 United States Training
- Environmental Fate of Radioactive Materials