

Nobel Week Report

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During the week of December 6–12, 2015, the Nobel Prize Award Ceremony and related festivities took place in Stockholm. As I was invited by Dr. Takaaki Kajita as a guest to attend these amazing festivities, I would like to report on Nobel Week 2015.

On December 6, there was a laureates' get-together at the Nobel Museum, and they each donated to the museum collection an object connected to their work. Dr. Kajita donated a 20-inch diameter photomultiplier (PMT) for the Super-Kamiokande's inner detector as well as an 8-inch PMT for its outer detector. Also, Dr. Arthur McDonald donated 500-ml bottles, each containing the same volume of heavy

water (D_2O) which was used in the SNO experiment, and light water (H_2O). They were put on each side of a balance. These donations are displayed together in the same box, as shown in Photo 1. When Professor Masatoshi Koshiya was awarded the Nobel Prize in Physics in 2002, he donated a 20-inch PMT, which had actually been used in the Kamiokande experiment. I also saw it in the Nobel Museum. Though only a few dozen donations from laureates are exhibited in the Nobel Museum because the building is not that large, there are two 20-inch PMTs among them. I felt it was a great honor. On that day, laureates signed the undersides of the chairs according to the tradition of the Nobel Museum. Photo 2 shows

the chair with the signatures of Dr. Kajita and Dr. McDonald.

The Nobel Lectures in Physics took place on December 8 at the Aula Magna, Stockholm University. Though the venue was a big auditorium with a capacity of 1,200, it was almost full. I was particularly surprised that there were so many young people who appeared to be university students. I felt envious of those students in Stockholm, because they can hear the historical lectures of Nobel laureates every year. After Royal Swedish Academy of Sciences President Christina Moberg's address and the Nobel Committee for Physics 2015 chairperson Anne L'Huillier's introduction, Dr. Kajita presented his 30-minute lecture (see Photo 3).



Photo 1: A 20-inch PMT and an 8-inch PMT for the Super-Kamiokande experiment and heavy water (D_2O) used in the SNO experiment and light water (H_2O). They were donated to the Nobel Museum.



Photo 2: A chair with the signatures of Dr. Kajita and Dr. McDonald displayed in the Nobel Museum.



Photo 3: Dr. Kajita giving his Nobel Lecture.



Photo 4: Nobel Concert. Dr. and Mrs. Kajita sitting in front of the camera.

He told the story of Kamiokande's startup around 1983; the story of his data analysis around 1986, which led to the discovery of atmospheric neutrino oscillations; and the story of Super-Kamiokande's startup. He then showed the famous slides he presented at the 1998 Neutrino Conference. He also mentioned that long baseline neutrino oscillation experiments have confirmed neutrino oscillations, that the third oscillation mode was discovered in the 2010s, and that large-scale future experimental facilities are being planned, aiming at starting in the 2020s. Finally, he acknowledged his collaborators in the Kamiokande and Super-Kamiokande experiments.

Subsequently, Dr. McDonald gave a 30-minute lecture. He said

that solar neutrino observations have been conducted based on the great achievements by Hans Bethe, William Fowler and others; how the SNO experiment was started; and how solar neutrino oscillations were discovered. He also said future experiments were now under preparation at the SNOLAB. Finally, he acknowledged his 262 collaborators who are coauthors of the SNO's papers.

At noon on that day, the Embassy of Japan hosted a reception at an elegant hall in the Grand Hotel, where the laureates and their guests stayed. After Ambassador Jun Yamazaki's opening address, the 2015 Nobel laureate in Physiology or Medicine, Dr. Satoshi Omura, gave his speech, followed by Dr. Kajita. As

young Japanese postdocs working in Sweden attended this reception, I had a chance to speak with young researchers in the field of physiology.

In this evening, the Nobel Prize Concert was held at the Stockholm Concert Hall (see Photo 4). The performance of the gifted twenty-four-year-old pianist Daniil Trifonov was simply overwhelming. After the audience enjoyed a glass of champagne in the intermission, at the beginning of the second half, conductor Franz Welser-Möst gave a speech in which he said that Nobel laureates in science are working on reality, but music can go beyond reality.

In the evening of December 9, a reception was given by the Nobel Foundation and the Royal Swedish

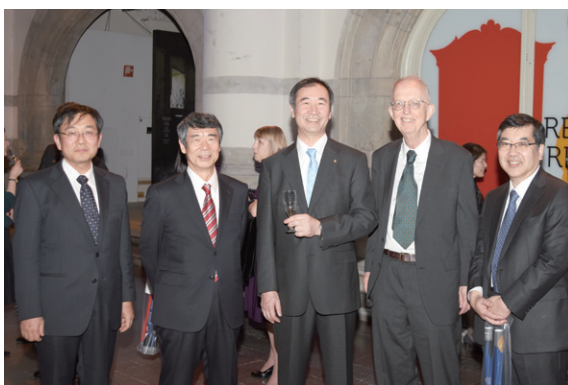


Photo 5: President of the University of Tokyo Gonokami (right) and old Kamiokande members at the Nobel Reception.



Photo 6: Dr. Kajita and his guests from the Super-Kamiokande group.



Photo 7: Nobel Prize Award Ceremony. Copyright © Nobel Media AB 2015, Photo: Pi Frisk

Academy of Sciences at the Nordic Museum. In the hall of the Museum, executives of the host organizations shook hands with each attendant. President of the University of Tokyo Makoto Gonokami was also invited to the Nobel Week as a guest; Photo 5 was taken with old Kamiokande members during the reception.

The highlights of Nobel Week, the Nobel Prize Award Ceremony and the Nobel Banquet, took place on December 10. The dress code for men for the festivities up to December 9 was business suit or dark lounge suit (for the Nobel Concert), but the dress code for men for the Award Ceremony and Banquet was white tie and tails. We had sent our measurements for renting men's formal attire before leaving for Stockholm, so a tuxedo was prepared for each guest by a tailor in Stockholm. In the afternoon of

December 8, guests visited this tailor for fitting and to learn how to put on a tuxedo. Guests gathered in formal attire on December 10. Photo 6 shows Dr. Kajita and his guests from the Super-Kamiokande group, taken in the hotel just before leaving for the

Award Ceremony.

The Nobel Prize Award Ceremony was held at the Stockholm Concert Hall with about 1,500 guests. The Hall, where the Nobel Concert had been held two days before, was rearranged for the Ceremony. Photo 7 shows the



Photo 8: Dr. Kajita receives his diploma and medal from King Carl XVI Gustaf of Sweden. Copyright © Nobel Media AB 2015, Photo: Pi Frisk

stage of the Award Ceremony. The Nobel Prizes in Physics, Chemistry, Physiology or Medicine, Literature, and the Nobel Memorial Prize in Economic Sciences were awarded, in this order. Dr. Kajita was the first laureate to be awarded the Prize (see Photo 8). For each Prize category, after a presentation speech to extoll the work of the laureate(s) in Swedish, King Carl XVI Gustaf of Sweden presented a diploma and medal to each laureate. When the Prize was presented by the King, the audience rose and a fanfare resounded through the Hall. I was deeply moved by this solemn Award Ceremony. Photo 9 shows Dr. Kajita's medal and diploma.

The Nobel Banquet took place in the City Hall, attended by 1,300 people (see Photo 10). When the laureates, the King and Queen and other members of the Royal Family of Sweden, as well as the other main guests walked into the hall, Dr. Kajita's wife was escorted by King Carl XVI Gustaf. They headed the procession. Dr. Kajita was escorted by Princess Sofia (wife of Prince Carl Philip). The meal started off with hors d'oeuvres (turbot and scallop with sea plants) followed by roasted veal wrapped in mushrooms as the

main course and coffee and almond flavored cherry blossom for dessert. I felt that the menu was thoughtfully and creatively elaborated. There was an after dinner speech given in each Prize category. Dr. McDonald gave a speech as laureate in Physics. He began his speech by saying, *"Today I am speaking for Prof. Kajita and our two scientific Collaborations, SuperKamiokande and SNO, of which there are a number of representatives here with us today."* Let me quote the main part of his speech.

*"... It has been said that behind every success there is effort, behind the effort there is passion and behind the passion there are people with the courage to try. Prof. Kajita and I have been very fortunate to have many highly skilled and courageous collaborators and we thank them for their contributions to our success. There are several founders of our collaborations who have passed away that we would particularly like to remember: Yoji Totsuka for SuperKamiokande and Herb Chen for SNO. We will be forever thankful for their contributions to the success of our experiments."**

After the banquet, there was the Students' Nobel NightCap organized

by the Stockholm University Student Union from midnight until 5 am. I did not join it, but a participant told me that it was something like a campus festival.

On December 11, BBC recorded a program called "Nobel Minds," which is a round-table discussion program. The Nobel laureates sat around a table surrounded by students, and the laureates answered questions from the students. It was a nice program because we can hear what laureates think about their respective fields of research from a global point of view. If you are interested in this program, you can watch it on the BBC or Nobel Foundation's websites.

Having attended Nobel Week, what I felt most strongly was the fact that many students and citizens are interested in science in general and they enjoy the brilliant achievements of the Nobel laureates. In Japan, our interest tends to focus on Japanese Nobel laureates. Looking at Scandinavian people who approach science from a global point of view, I felt the importance of history.

* http://www.nobelprize.org/nobel_prizes/physics/laureates/2015/mcdonald-speech.html. Copyright © Nobel Media AB 2015



Photo 9: Dr. Kajita's Nobel Prize medal and diploma.



Photo 10: Nobel Banquet. Copyright © Nobel Media AB 2015, Photo: Alexander Mahmoud