



SIYSS 2011
Stockholm International
Youth Science Seminar

Reflections for Stockholm International Youth Science Seminar (SIYSS) 2011

A post-event evaluation

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Stockholm International Youth Science Seminar (SIYSS) is an annual weeklong event which brings together 24 young scientists from across the world to participate in scientific activities, lectures and the various Nobel festivities. This year marks the 36th year the seminar is being organized.

I. 3rd to 4th December

After traveling in the air for more than thirteen hours, I have finally arrived at Sweden's Arlanda Airport. I was quickly received at the arrival hall by Andreas and Sanja, who are two of the SIYSS coordinators. Seeing that two of the participants have already arrived, I tried to initiate a conversation with them, quickly learning their names, hobbies and place of study: they are Povilas from Lithuania and Pius from Switzerland. Povilas is quite a character: he won First Prize at the European Union Contest for Young Scientists (EUCYS) for his impressive microbiology project, and he told me that he is currently teaching second-year medical school students medical microbiology after having just finished high school. I quickly became friends with Povilas and I really enjoy chatting with him as we both are highly interested and passionate about the area of microbiological investigations. We were soon joined by the participants from Australia, namely Stevie and Matthew. After which, the five of us shared a cab to where we stayed at, Af Chapman, which consists of a small building (containing the reception and meals area) and a ship. Upon walking on the streets of Stockholm, I quickly realised that the frigid temperatures in Stockholm (ranging from 0 to 5°C) was extremely different from the tropical rainforest climate of Singapore. Stockholm is both cold and windy and I was soon told by the SIYSS coordinators that there will only be around 6 hours of daylight during this time of the year.

Being extremely exhausted after the long, tiring flight, I quickly settled in, unpacked my luggage and took a short nap when we reached Af Chapman. After I woke up, I re-joined the group to play some icebreaker games which consist of Bingo! and other welcoming activities aimed at helping the participants to get to know one another better e.g. each person's name, country and interests.

Subsequently, we had dinner before retiring to our cabins to rest. I was roomed with 5 other participants, namely Andrew from USA (who has yet to arrive), Jinyoung from South Korea, Pius from Switzerland (whom I have met earlier), Espen from Norway and Daniel from Germany. They are a bunch of really interesting and fun-loving people and I am really happy to be able to room with them.

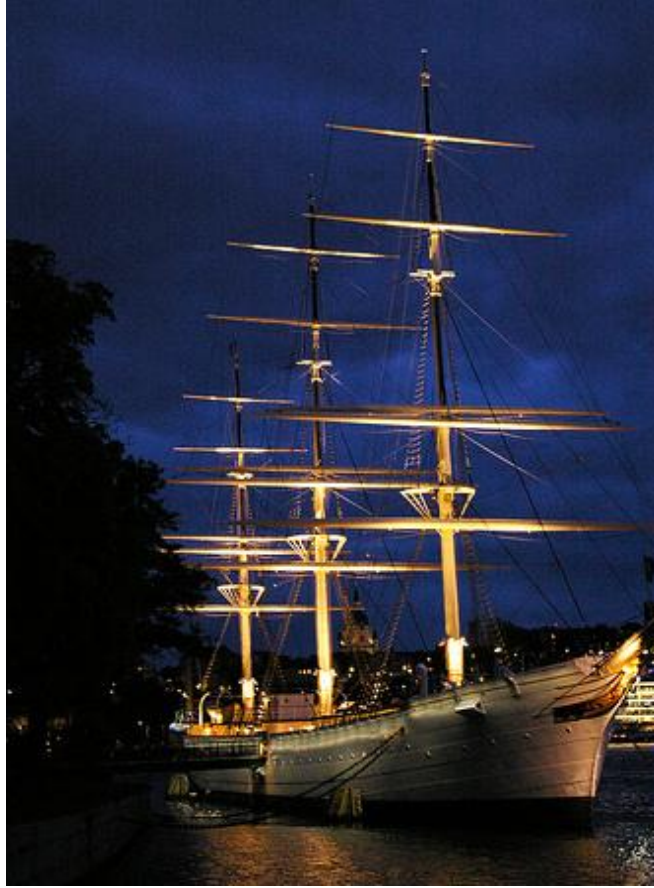


Figure 1. A photograph of Af Chapman

II. 5th December

Most of us woke up early in the morning to have breakfast, wash up and get ready for the day. At around 8.00am, we left on a bus for a sightseeing tour around Stockholm, where we were introduced to the various sights and historic places in Stockholm by the dedicated and knowledgeable tour guide.

We were introduced to the majestic “Stenbeck Tree” which is supposedly one of the tallest Christmas trees in the world. The Christmas tree is around 131 feet (40 meters) tall, which possibly makes it the biggest Christmas tree in the world. It is a man-made sculpture made by several spruces and the tree trunk is more than a century old, planted in the middle of the 1800’s in the deep forest of central Sweden. It was selected because it is exceptionally tall, straight and healthy. The branches are carefully chosen from 15-20 trees, which are all grown in especially good conditions, standing free from competition of other neighbourhood spruces. Interestingly, the Stenbeck Tree has been artificially constructed to have perfect symmetry.



Figure 2. The Stenbeck Tree

After the sightseeing tour by bus, we headed for the Nobel museum. I was particularly intrigued by the Nobel Museum's self-produced exhibition honouring Marie Curie – *Marie Skłodowska / Madame Curie* – an exhibition with a new approach to the familiar story of Marie Curie. The exhibition depicts Marie Curie's life in the service of science and her passion for scientific work. I have always been amazed by the life and achievements of Marie Curie, a two-time recipient of the Nobel Prize. In 1903, Marie Curie received the Nobel Prize in Physics and became the first woman to be awarded a Nobel Prize. In 1911, she was awarded the full Nobel Prize in Chemistry and thus became the first person ever to be conferred the award a second time. The brilliant exhibit further cemented my admiration for this iconic figure in the history of science.



Figure 3. An exhibit honouring Marie Curie

Not only are the exhibits in the Nobel Museum creative, I was also amused by their “guestbook”: accordingly, when the first Nobel laureates visited the museum, the staff at the museum had forgotten to prepare a proper guestbook, so the Nobel laureates had to sign on the bottom of the café chairs which has since become a tradition.



Figure 4. Signature of the 14th Dalai Lama

During our time at the museum, we also learned more about Alfred Nobel's life, his will, and the many people and organizations involved in setting up and awarding the Nobel Prizes. Alfred Nobel devoted most of his life to the study of explosives, and especially to the safe manufacture and use of nitroglycerine. The foundations of the Nobel Prize were laid in 1895 when Alfred Nobel wrote his last will, reserving much of his wealth for its establishment. The Nobel Prize was first awarded in 1901, and since 1901, the prize has honoured men and women for outstanding achievements in physics, chemistry, medicine, literature and for work in peace.

After our visit to the museum, we went for lunch before heading back to Af Chapman, where we were given time to prepare for our presentations for the upcoming international dinner and seminar. The evening was extremely fun and lighthearted as we had our international evening. We were divided into three groups to alternate amongst the three different station games: namely, painting hard-boiled eggs, making 'crayfish hats' and dancing around a Christmas tree (to a Swedish song). The activities were really enjoyable and I had a great time painting the hard-boiled eggs – I personally chose to decorate my egg with fractal patterns.



Figure 5. Our painted hard-boiled eggs

After our activities, we went to the dinner table to have our dinner. We were served crayfish and Swedish meatballs, and we were taught how to eat crayfish the Swedish way – while wearing our ridiculously-designed 'crayfish hats'. During the dinner, everyone had to give a short 5-minute presentation on their country and it was really interesting as we were given a panoramic glimpse into the many different countries and cultures that everyone came from.

III. 6th December

Immediately after breakfast, we were rushed off to the renowned Karolinska Institutet, where the Nobel Assembly at Karolinska Institutet is placed in charge of awarding the Nobel Prize in Physiology or Medicine every year. Prof. Annika Scheynius gave us a warm welcome before delivering her welcome address, summarizing the scientific work done at Karolinska Institutet and the research undertaken by her translational immunology unit. This was soon followed by a presentation by Nathalie Acevedo, a PhD student who presented her work investigating DNA methylation in immune cells. Prof. Gunner Nilsson subsequently gave us a lecture on mast cells and the potential therapeutic potential of using mast cells as ‘smart’ bombs to target tumours, or as adjuvants for vaccination etc.

After the lectures, we were given a laboratory tour where we were introduced to cutting edge technology and equipment, such as the flow cytometer (for cancer diagnostics), and the confocal microscope (for examining Langerhans’ cells in atopic eczema). We also had the chance to hear an interesting presentation from Assoc. Prof. Susanne Gabrielsson, who presented to us her research on the use of exosomes as therapeutic vehicles. I found the presentations and laboratory tour particularly stimulating and enriching, perhaps owing to my personal interest in clinical and biomedical research.

We then had a nice and rather formal lunch with the secretary of the Nobel committee, Prof. Göran K. Hansson. Prof. Göran K. Hansson is a member and past chairman of the Nobel Committee for Physiology or Medicine at Karolinska Institutet (for deciding the Nobel Prize in Physiology or Medicine every year). After lunch, he gave us an informative lecture on the detailed process of how Nobel Laureates in Physiology or Medicine are selected every year. During the Nobel Foundation reception (which took place later in the week), I met Prof. Göran K. Hansson again and I managed to have the chance to take a photograph with him and his wife.



Figure 6. With Prof. Göran K. Hansson and his wife

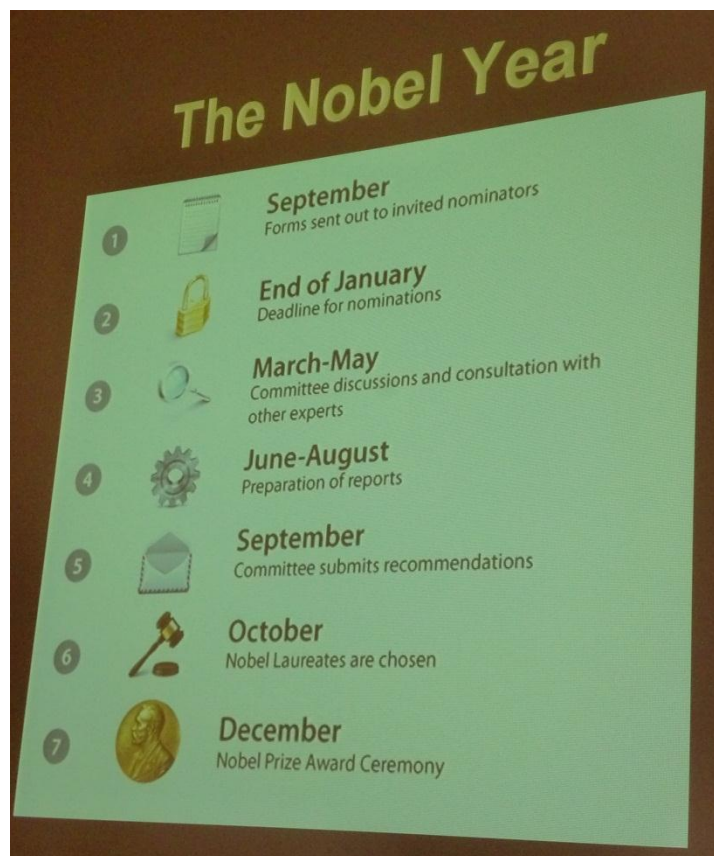


Figure 7. The Nobel Year: details on the selection process

After the lecture, we were also given the privilege of attending the press conference for the Nobel Laureates, giving me the chance to meet this year's Nobel Laureates in Physiology or Medicine, Prof. Bruce A. Beutler and Prof. Jules A. Hoffman. However, it was very saddening to hear that Prof. Ralph Steinman (one of the Nobel Laureates) died only two days before the Nobel Assembly's decision on this year's Nobel Prize in Physiology or Medicine was announced. The Nobel committee was unaware that Prof. Ralph Steinman had died earlier, on September 30, from pancreatic cancer. This created a serious complication, since the statutes of the Nobel Foundation stipulate that the Nobel Prize is not to be awarded posthumously. We were told that after much deliberation, the Nobel committee eventually decided that as the decision to award the prize "was made in good faith", the decision would thus remain unchanged.

After the press conference, we headed back to Af Chapman to make final preparations for the seminar which would take place tomorrow. In the evening, we had an etiquette dinner where we were given a lesson on the dining etiquette we should observe during the Nobel Banquet. After dinner, we were taught how to dance the Waltz so that we can at least blend in during the post-Nobel Banquet celebrations and dance party. The whole experience of the etiquette dinner and learning to dance a simple Waltz was great fun, and the experience allowed me to bond closer together with the other participants as we all joked and laughed about our 'awkward' table manners and dance movements. The night certainly ended on a high note.

IV. 7th December

This was the day of the actual seminar, where we had the opportunity to present our research projects and findings to an audience of Swedish high school students and the other participants. Amongst the many projects presented, I realised that there were a few projects that I had previously seen at the Intel International Science & Engineering Fair (Intel ISEF), such as the Korean team's project on mimicking the hydrophilic properties of spider silk and Andrew's project which investigated aggression behaviour in fruit flies. I was extremely impressed by the various projects presented as many of the participants demonstrate a great depth of scientific knowledge and a strong passion for scientific research. It was certainly a very enlightening, inspiring and humbling experience as many of the participants were winners of national or international science research competition; Besides the high-level research projects showcased, I was left particularly amazed by the passionate enthusiasm many of participants have towards scientific research – I cannot help but feel a little ashamed of myself as I personally do not think that I possess even half the intelligence and passion for science some of them have.

Beyond showing just an ardent interest in scientific work, many of the participants tackled pertinent real-life issues and attempted to solve these pressing problems through research. For example, Augusto from Switzerland investigated the water quality of six sampling sites in his hometown and discovered that 68.18% of the water samples collected had a microcystin concentration that was higher than the tolerance value suggested by the World Health Organization (WHO). Microcystin are cyanotoxins which can be very toxic to humans, potentially causing severe damage to the liver. He was determined to improve the water quality and safety of the drinking water and hence, presented his findings to the regional authorities, compelling them to carry out practical actions (e.g. installing activated carbon filters) to improve the quality and safety of drinking water for the locals. His research also suggested a simple yet effective method for domestic water treatment. His research definitely brought about a strong positive change in the local community as the local hospital reported a significant decrease in the incidence of water toxicity/poisoning after the activated carbon filters were installed. His project has definitely shown me the practicality and importance of research in today's society.

The format of the seminar is also a little different from previous years. This year, the organizers decided to give the participants and the Swedish students the opportunity to a less formal dialogue during the seminar. So both before and after our presentations the students will be allowed to walk around to the various booths (where we will be stationed) to ask us questions about our research. Besides questions about my project, I also received questions about how the school system in Singapore works, what I am currently studying and my future plans etc. The atmosphere was very lively as the visitors were generally enthusiastic. All in all, I had a really enjoyable time mingling with the Swedish students and it was very nice for me to meet students who are also pursuing the International Baccalaureate (IB) diploma as we had a lot to talk about.



Figure 8. Explaining my project to a group of interested Swedish high school students

After the seminar has concluded, we were hurried off to the Nobel Lecture in Literature. According to the statutes of the Nobel Foundation, each laureate is required to give a public lecture on a subject related to the topic of their prize. I was told by the SIYSS coordinators that we were extremely privileged to be able to attend the Nobel Lecture in Literature as only around 200 guests are invited each year. As the Nobel Laureate, Tomas Tranströmer suffered a stroke in 1990 which left him partially paralyzed and unable to speak, the Nobel Lecture thus consisted of a program featuring texts written by Tomas Tranströmer, recited in the presence of the Laureate. The lecture was held at the majestic Grand Hall in the Swedish Academy in Stockholm.

It had been a really long and busy day – after the lecture, we had our dinner in the Old Town before heading back to Af Chapman to retire for the night.

V. 8th December

In the morning, we had our breakfast before leaving for Stockholm University, where the Nobel Lectures in Physics and Chemistry would be held at Aula Magna. I felt highly privileged when I realised that the third and fourth row of seats after those reserved for the Nobel Laureates' relatives were reserved for us, giving us a clear view of the stage. The day started off with the Nobel Lecture in Physics. As the Nobel Prize in Physics 2011 was divided, one half awarded to Prof. Saul Perlmutter, the other half jointly to Prof. Brian P. Schmidt and Prof. Adam G. Riess "*for the discovery of the accelerating expansion of the Universe through observations of distant supernovae*", the lecture was divided into three different parts to be presented separately by the three Nobel Laureates. The speakers were introduced by Professor Börje Johansson, Chairman of the Nobel Committee for Physics before the Nobel Laureate came on stage to deliver the Nobel

Lecture. For me, the Nobel Lecture in Physics was really interesting and it led me to consider the final destiny of the Universe. For almost a century, it has been well-known that the Universe is expanding as a result of the Big Bang (which took place about 14 billion years ago). However, this year's Nobel Laureates in Physics made the groundbreaking discovery that this expansion is in fact accelerating; this acceleration is postulated to be driven by dark energy (which accounts for around 70% of the total mass-energy of the Universe). The Nobel Laureates were extremely passionate and engaging and I was very intrigued by the research and findings they present. If the expansion of the Universe will continue to speed up, it is believed that the Universe will end in ice. However, the question regarding the exact nature of dark energy remains unsolved; the basic and fundamental research done by this year's Nobel Laureates in Physics have certainly helped to expand our current understanding of a Universe that is to a large extent still unknown to science.

The Nobel Lecture in Physics was quickly followed by the Nobel Lecture in Chemistry after a short intermission. The lecture was enlightening and enriching for me as I learnt about Prof. Dan Shechtman's research, thought process and his long and hard journey before eventually winning the Nobel Prize. Prof. Dan Shechtman faced much hostility towards his discovery of quasi-periodic crystals, previously thought to be seemingly impossible crystal structure in metals. In the course of defending his findings, he was even asked to leave his research group for bringing disgrace on the team. However, his controversial discovery eventually compelled scientists to reconsider their conception of the very nature of matter. His lecture and journey reminds the entire audience of the need to keep an open mind and to fight for our convictions. This year's Nobel Laureate in Chemistry was ridiculed for his work and was forced to do battle with established "truths", which in retrospect have proven to be no more than mere assumptions. I have thus learnt that maintaining an open-minded attitude and being daring enough to question supposed "truths" may in fact be a scientist's most important characteristics. Prof. Dan Shechtman also reminded us that "a humble scientist is a good scientist" – an important learning point from his lecture and journey.

After the lecture, we went for lunch before visiting the Natural History Museum. I was really impressed by the well-preserved and breath-taking exhibits displayed at the Natural History Museum. However, as we were only given 45 minutes, we could not explore the entire museum in detail. After the short trip to the museum, the guys headed off to rent their tails, the formal attire to be worn during the Nobel Banquet and Nobel Nightcap. The SIYSS coordinators told us that the tailor shop we will be visiting is the most renowned one in Stockholm and the Nobel Laureates will usually come here as well to rent their tails. The entire fitting process went by relatively quickly and I was very much excited to see the tails for the first time as they look really posh and sleek.

After the tails rental, we headed back to Af Chapman to get some rest before going out for dinner. We were treated to a "Swedish Christmas dinner" that evening, in which we were served a buffet spread of savoury Swedish Christmas food, including traditional Swedish meatballs and desserts. The SIYSS leaders and coordinators also dressed up in white clothing and sang us traditional Swedish Christmas songs. At the end of the

evening, there was a Santa Claus who came in to give each of us a nicely-wrapped present. The tantalizing food, wonderful company and lovely ambience made the evening particularly pleasant and memorable.



Figure 8. The SIYSS leaders and coordinators all dressed up in white to sing us a traditional Swedish Christmas song

VI. 9th December

After having our breakfast, we travelled by bus to AstraZeneca, a global research-based biopharmaceutical company. We were warmly welcomed by Ms Karin Marklund at the reception. This was quickly followed by a detailed introduction to AstraZeneca by Mr. Tobias Olsson, who presented on the company's research thrusts and activities, the make-test cycle involved in the development and commercialization of a new drug, and the scientific and ethical aspects related to using animals for drug testing and pharmaceutical research. Subsequently, a principal pathologist working at AstraZeneca came forward to present to us his research on reproductive toxicology. Reproductive toxicology is an increasingly important field of research as seen from the Thalidomide tragedy, where severe birth defects were reported at an exceptional level in individuals whose mother took the drug during pregnancy. As I am highly interested in clinical research, I was very much captivated and engaged by the presentations.

After lunch, we continued to tour around AstraZeneca before attending a talk by Prof. Ian Cotgreave, who gave us a highly engaging and impassioned lecture on stem cell research (and regenerative medicine) and the use of stem cells in screening new medicines. As

explained by Prof. Ian Cotgreave, human embryonic stem cells can be induced to develop into liver tissues (hepatocytes) as the human liver is a key organ for toxicity because it is the ultimate “dustbin” of the body (responsible for detoxification of several harmful substances). This could then be used early during drug development to screen new medicines and filter out potentially harmful ones. It is hoped that through the use of stem cells, we could eventually reduce the number of animals used to test drugs. This is in line with the 3R principle of Reduce, Refine and Replace, i.e. to refine the experiment to prevent any harm or distress to the animal, to reduce in the numbers of animals involved, or to ultimately replace the use of animals with cells, plants or computer simulations.

In the evening, we were greatly privileged to be invited for the Nobel Foundation reception at the Nordic Museum. It was a very grand and exclusive function as only the Nobel Laureates, their relatives and other special invited guests were present. The Nobel Foundation reception is so private (with only around 100 invited guests as compared to approximately 1,300 for the Nobel Banquet) that it is normally not listed as part of the Nobel Week. The Nobel reception was certainly a wonderful opportunity for us to interact with the Nobel Laureates and other highly-esteemed scientists present. I had the privilege of talking to this year’s Nobel Laureates in Physics, Prof. Saul Perlmutter, Prof. Brian P. Schmidt and Prof. Adam G. Riess, as well as Prof. Dan Shechtman, this year’s Nobel Laureate in Chemistry. I also met up with Prof. Bruce A. Beutler, this year’s Nobel Laureate in Physiology or Medicine. It was very nice to have a friendly and informal chat with these distinguished Nobel Laureates, who shared with me a lot of insightful and interesting stories and advice (often stemming from their own life experiences).

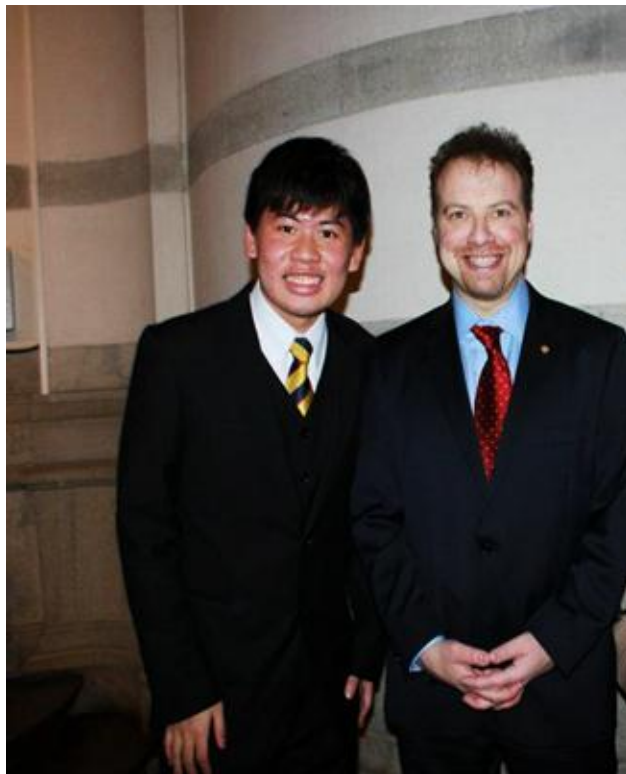


Figure 9. With Prof. Adam G. Riess, one of this year’s Nobel Laureates in Physics

I also had the chance to meet Dr Steven Chu, a Nobel Laureate in Physics (1997) and the current United States Secretary of Energy, and we took a photograph together to remember this fortuitous meeting.



Figure 10. With Dr Steven Chu, United States Secretary of Energy

Amidst the crowd at the Nobel Foundation reception, I vaguely spotted a familiar face. Upon a closer look, I distinctly recognize Prof. Bertil Andersson, current President of our local university, Nanyang Technological University (NTU). I immediately went forward to greet him. He was at the reception together with his wife, Assoc Prof. Susana Geifman Shochat. Interestingly, both of them are plant biochemists and I really enjoyed conversing with them, perhaps owing to my personal interest in plant sciences and structural biology. The Nobel Foundation reception really provided me with a golden opportunity to discuss science and my personal aspirations with eminent scientists and researchers while sipping sparkling champagne and tasting exquisite and delectable snacks. There was undoubtedly a lot for me to gain and learn from my conversations with these prominent and highly-regarded scientists.



Figure 11. A photograph with Prof. Bertil Andersson and his wife, Assoc Prof. Susana Geifman Shochat

At the end of the evening, we decided to take a group photograph before leaving the premise. The group photograph would serve as a good reminder of the fantastic time we had at the Nobel Foundation reception.



Figure 12. A group photograph for keepsake

VII. 10th to 11th December

The big day has finally arrived. We got to sleep in today and had our breakfast later in the day at around 9am. After which, we all started dressing up and getting ready for the Nobel Prize Award ceremony and Nobel Banquet. It was the first time I had to wear a tail and putting it on proved to be quite an ordeal. Fortunately, I had help from the other participants and soon I was ready. It was a very formal occasion and all of the participants were exceedingly well dressed, especially the girls with their gorgeous ball gowns and styled hair. We had a group of professional photographers to help us take a group photograph, which would remind us of our time here in Stockholm as SIYSS 2011 participants. However, the photo-taking session was rather torturous in the sense that it was extremely cold that afternoon, and all of us were shivering in the cold (without our jackets and coats) when we took our group photograph.

After the (freezing) photograph session, we were treated to a short farewell reception at the captain's cabin on Af Chapman, where we expressed our sincere gratitude to the SIYSS coordinators for their dedication, and we were each presented with a certificate of participation. Emotions were running high as we realised that this was probably the last time we would be gathering together as a group. We took many photographs in our tails and gowns in the Captain's cabin to remember the friendships forged and the wonderful SIYSS trip which was quickly coming to an end.



Figure 13. A photograph with my good friend, Shin Dongju from South Korea

Unbeknownst to us, we had a real surprise when we left the ship: long, expensive-looking and stunningly-beautiful white limousines were waiting to pick us up! Each limousine was extremely spacious – it could seat eight people and there was even a mini bar within it. We were all pleasantly surprised and it felt so surreal (and immensely privileged) to be travelling in a stylish limousine for the first time.



Figure 14. A gorgeous white limousine waiting to pick us up

The Nobel Prize Award ceremony was held at the Stockholm Concert Hall, where the Nobel Laureates will receive their (personalised and specially-designed) diplomas and medals from the Swedish King Carl XVI Gustaf. The Prize Award Ceremony takes place here on December 10 every year. The Concert Hall is located in a bright blue building in the very centre of Stockholm. The brilliant architecture of the Stockholm Concert Hall was inspired by the design of the ancient temples in classical Greece. The Nobel Prize Award ceremony is a solemn, extremely formal and grand affair. For each Nobel Prize to be awarded, a citation of the research and discovery made by the Nobel Laureate will be read, before the Nobel Laureates are officially called to receive the prize from the Swedish King himself. The Swedish Symphony Orchestra was present to perform beautiful songs and charming melodies in between each Nobel Prize.

After the Nobel Prize Award ceremony has concluded, we headed outside the Concert Hall to take the bus service which would bring us to the City Hall of Stockholm where the Nobel Banquet would be held. A total of 1,300 guests were seated at the Blue Hall of the City Hall of Stockholm to enjoy the Nobel Banquet. I really adored the exquisite food served and the enchanting performances staged in between the courses – everything was of epic proportions and practically synchronised to perfection. The extremely savoury and appealing food and the expensive golden cutlery made the Nobel Banquet literally fit for a King.



Figure 15. Nobel Banquet at the City Hall of Stockholm

The Nobel Banquet was only the beginning of the night's festivities. After the sumptuous dinner, we proceeded to the Golden Hall, where we danced together with the royal family, the Nobel Laureates and other distinguished guests. I went up to the Golden Hall, and realized that the hall was truly majestic and lived up to its name. Asking my partner (Yorie from Japan) for a dance, I started dancing a waltz, together with the King and Queen, the Nobel Laureates and other invited guests. The grand setting and enthralling music made the night simply spectacular and unforgettable.

At around midnight, we took a bus which would bring us to the Nobel Nightcap at Stockholm University. When we arrived at Stockholm University, we were amazed by how the entire university had been transformed into a giant party area with lots of food, games and disco – an amazing feat managed by three-hundred student volunteers and sponsors. The theme for this year's Nobel Nightcap was to recreate a world in which the clock stopped at the year 1771, complete with a Royal Ball Hall, the Queen's Boudoir, a buzzing marketplace and an enchanted garden. The Nobel Nightcap was certainly an eye-opening and entertaining experience. All of us enjoyed ourselves thoroughly and we all bonded closer together as we chat over food and drinks and grooved to the uplifting disco beats on the dance floor.

At around 4am, I decided to head back to Af Chapman to get some rest, while some of the participants stayed on until the end of the Nobel Nightcap at 5am. I managed to get a few hours of sleep before waking up at 7am to send off some of the participants. We were all sad to leave but we promised one another to keep in touch always, be it through Skype, Facebook or other means. As I was one of the last to leave the hostel for the airport, I had the chance to send off and say my goodbyes to most of the participants. It

had definitely been an exciting and enriching week, and all of us grew closer and very much emotionally-attached to one another. To quote William Shakespeare, “parting is such sweet sorrow”. This quote aptly reflects our poignant emotions as we bid farewell to one another; our sorrowful parting is also “sweet” because it makes us think about the next time that we will see each other. I am currently still in contact with several of the participants and we often chat over Facebook or have video-calls through Skype when we are free.

After a brief shopping trip with two other participants, we departed for the airport, where I came to the sad realization that this amazing experience was finally over as I walked towards the departure gate with a heavy heart. No matter how clichéd it may sound, for me, this was indeed an unforgettable and once-in-a-lifetime experience. I am exceedingly grateful for the rare opportunity to attend the Stockholm International Youth Science Seminar (SIYSS) 2011 and I would like to express my sincere and greatest gratitude to World Scientific Publishing Co. Pte Ltd, the Imperial College Alumni Association of Singapore and the Ministry of Education for making this possible. I would also like to thank the Swedish Federation of Young Scientists and the dedicated SIYSS coordinators for planning and organizing the whole event – making SIYSS 2011 such a phenomenal success.

This extraordinary experience has not only further stimulated my interest in scientific research but it has also broadened my horizons and knowledge, developed in me a pluralistic attitude and made me think from a wider perspective. This trip has certainly left me with indelible and enduring memories which I reminisce, and precious friendships which transcend physical boundaries, cultures and time. I am immensely thankful for having the chance to attend the prestigious Nobel ceremonies and festivities and the opportunity to meet the most amazing and zealous individuals, who possess exceptional talents in science and have a genuine and inspiring passion for scientific research. The week I had in Stockholm was undoubtedly one of the best weeks of my life – the inspiring experience, lessons learnt, friendships forged and fun-filled moments will always be remembered. I definitely look forward to meeting everyone again and perhaps, even collaborate and work together on multidisciplinary research projects in the near future.



Figure 16. A beautiful sunset by Af Chapman



(from left to right: Augusto from Switzerland, Ken from Japan, Jinyoung from South Korea and myself)

Figure 17. We will meet again sometime, somewhere

- THE END -