

Report of International Internship

Khon Kaen University, Thailand

From 17th September to 13th October, 2013

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· Introduction

For Internship, I visited Thailand for one month. I stayed at Thailand from 17th September to 13 October. I studied at Khon Kaen University faculty of engineering as Intern. It was some time difficult, but I could learn many things through studying there. And also I could understand Thai culture and custom through these things. Because I met many people and communicated with them. Internship was all things very good experience to me.

So, I want to report my experience of Thailand. First I am going to write Thailand, and Second Khon Kaen University, last my life in Thailand.

· My purpose of internship

I would like to develop my English skill and feel the different culture from Japan. I'm not good at English, and I'm shy. I hoped that I could change myself through this program. In addition, Many Japanese companies have been advancing to Thailand, I wanted to experience the globalization of business in recent years. And I thought it is going to get the experience that affect my future.

· Thailand and Khon Kaen

Regular name of Thailand is "Kingdom of Thailand". Capital is Bangkok. Area is 514000km²(1.4 times the area of Japan.). Religion is Buddhism 95%, Islam 3.3%, Christianity 0.5%etc. Money is Baht. Constitution is monarchy. Population is 6820 thousand(2013). Language Thai.

Thailand is tropical zone. So, Thailand keeping high temperature on all season. Thailand has 3 seasons. It is rainy season, dry season(cold season for Thai students) and heat season. I visited from September to October. It was rainy season and dry season. It rained on and off all day. But it was not always. It rained about 3 ~10 hours a day. It sometimes becomes heavy rain. And the weather was very good after October.

Khon Kaen is northeastern region of center of Thailand. It 445km from Bangkok. Area is 10855km² Khon Kaen prefecture is famous in dinosaur. Fossil of dinosaur and wall painting of cave were discovered in Khon Kaen.

- Khon Kaen University

Khon Kaen University is a one of the public University in Thailand. Khon Kaen University is established in 1964. It is first public University and biggest University in northeastern region of Thailand. There are 17 faculty and graduate school..

- Routes to Khon Kaen from Nagoya

I got on the plane in Chubu Centrair International Airport, and went to Khon Kaen via Suvarnabhumi International Airport. I got on the plane of Thai Airways International. The students of Khon Kaen University came to the airport to pick up me. ‘ ‘ Suvarnabhumi International Airport’ ’ is Gateway to the new sky in Bangkok, Thailand. The largest in the world and 563,000 square meters of floor area of the airport. It is a national project that was promoted as a symbol of a new era in Thailand aimed at hub of Asia.



- Apartment

I lived at apartment for one month. My apartment name is “Somnuk apartment” . It was very nice and clean. There were bed, desk, chair, closet, TV, air conditioning, fan, bathroom, and porch. Room’ s color was white. My room has not bathtub. Because, Thai people dose not usually use the bathtub. They always use only shower and take a shower every morning. And many case of apartment have air conditioner. Thailand is very hot, it can reach to 40 °C. There is a hand shower next to the toilet. It is called

“ Washlet” in Japan. It’s difficult for me to use it, because it’s manual, not the automatic.



· Sutdy

When I stayed Khon Kaen University, I belonged to Faculty of Engineering. I could study at three departments.

① department of Mechanical engineering

Professor Akarapon

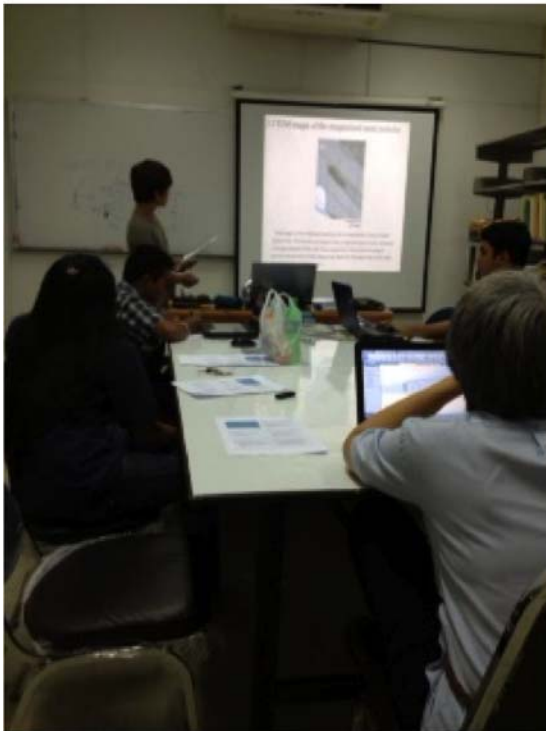
I examined the mechanical properties of steel. But there is only iron bars rusted at the department. So the experiment begins with taking remove of iron bars. And I did tension test of the iron bars. However the quality of the sample is uncertain, it is impossible to obtain an accurate property of the iron bars.



② department of Agricultural engineering

Professor Kwanterr

I had a description of my research on students of department of agricultural engineering. In spite of the presentation was different from their major, they listen seriously and asked me about my research. They gave very interested in my research.



I measure the quality of the fruit. I used calipers to measure the Basic Geometric Characteristics. I used Protractor and Board of various types measure to the Coefficient of Static Friction. In practice, often the Coefficient of Static Friction does not become theoretically predicted. Because friction is not well understood. Therefore it is dangerous to design by only theory value, it is important to design based on the experimental values. Finally, I used Compression Testing Machines to measure the Force-deformation curves of each fruit. From this, we can know the hardness of the surface and the inside of the fruit.



③ department of Chemical engineering

Professor Chaiyaput and Professor Mallika

I belong to the Faculty of Engineering of Mie University. My department is Physical Engineering. My research is making carbon nanotubes **encapsulating magnetic particles** and assessing it. In Khon Kaen University, there is not department of Physical Engineering. But Chaiyaput 's laboratory in department of chemical engineering research about carbon nanotubes. So I requested to study at there.

Chaiyaput 's laboratory attempted to make carbon nanotubes tube from activated carbon. We use the ferric nitrate for the catalyst. It' s not good for catalyst because it' s not pure iron and it' s large particles. But they don' t have pure iron powder.

Activated carbon : Most of the activated carbon is carbon, it have a fine many holes. The holes have the property of adsorbing the substance. So it' s used deodorization, water purification, the adsorption of harmful substances. We have an image that charcoal can deodorize .The charcoal is activated carbon.

Ferric nitrate : It is a compound represented by $\text{Fe}(\text{NO}_3)_3$

I described below the experimental procedure.

1: I melt activated carbon and ferric nitrate with water. And I mix it for 6 hours by Magnetic stirrer. I dry liquids mixed by oven. I make three types of samples.

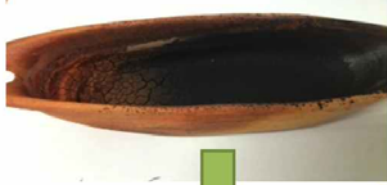
Weight Ratio

activated carbon [g]: ferric nitrate [g] = 1: 1, 3 : 1, 5 : 1

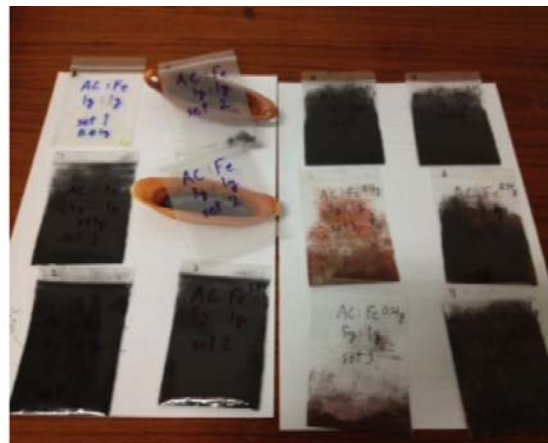


2 : The liquid dried became a powder. And I put the powder on the ceramic board. I do CVD(Chemical Vapor Deposition) the powder. I expected the carbon nanotubes to grow.

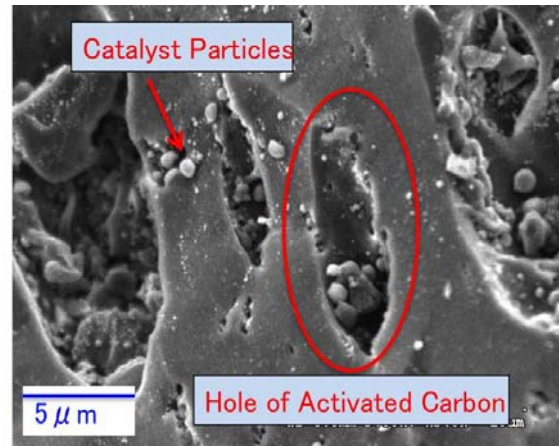
the powder on the ceramic board



CVD Apparatus



3 : No difference in appearance appeared in the before and after CVD. But I think red powder become Iron oxide. And carbon nanotubes are very small, so I can not see it with the naked eye. I saw the samples in SEM. SEM is Scanning Electron Microscope. I can see even those few nanometers by SEM.



I made a lot of samples in a short period of time. However I could not make carbon nanotubes. I think that there are two causes of it. One, Catalyst could not be diffused. So catalyst particles are very big for growing carbon nanotubes. Another, gas of CVD is only nitrogen. We thought that carbon nanotubes can be grown from carbon of activated carbon. But in practice, carbon of activated carbon could not be dissolved in the catalyst. I think that injecting acetylene in the course of CVD As a remedy. But I don' t have time to try this remedy.

· Culture



Students of Thailand study were studying until 21:00. I think Thai students are very diligent.



This is instant coffee of Thai. Coffee is only 10%. Most Thai people can't drink black coffee.



This is picture store. Thai people usually present a picture for Article of the celebration.



This is convenience store. There are a lot of a convenience store in Thailand. Seven Eleven is most popular in Thai.



Whereas a printer of Japan is cartridge type, it of Thai can be refilled ink myself. So this is ecological and economical.



This is parking lot of huge shopping mall. Since there are many cars, we must press cumbersome car by hand when put out my car

· conclusion

I could learn importance and fun to communicate with people. Despite I was not good at English, Thai students talked me aggressively. I have made many friends. I went with them a variety of places. I was able to spend with a smile always because they are very funny and friendly. It's good memory for me. I was very shy, but I became good at communication a little through this internship.

I felt firsthand the development of the economy of Thailand. Thai people have expensive car and smartphone. I thought their consumer appetite is higher than Japanese. Thai economy will grow more and more.

At the end, thank everyone who teacher of Center For International education and research Mie University and Professor, students of Faculty of Engineering of Khon Kaen University.

