Kobe University Newsletter "Kaze"

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Mount Rokko

Forming a stunning backdrop to Kobe University's Rokko-dai campuses is the Rokko mountain range. Although not technically a single mountain, the part known as Mount Rokko can be reached from a cable car located not far from the university.

Mount Rokko is known for its stunning views of Osaka and Kobe that can be seen from the observation platform near the cable car station at the top. Panoramic vistas of both cities and the sea beyond can be enjoyed during the day and in the evening. These renowned views, along with the varied attractions and activities on offer, make Mount Rokko an ideal change of scene from the cities below. Points of interest include the European-style Rokko Country House, the music box museum, the alpine botanical gardens, and Rokko Garden Terrace's shops, restaurants and scenic views. Activities including skiing, fishing, golf, pedal-boating and go-carts are available depending on the season. There is also an annual 'Rokko Meets Art' event where modern art installations are on display.

Even today, many of the attractions on the mountain have a European flavor. This is connected to Kobe's cosmopolitan history as a port city that has witnessed ships and goods coming from all over the world since the opening of Japan over a hundred and fifty years ago. In 1895, Arthur H. Groom, an English trader and foreign resident in Kobe, decided to build a summer cottage on Mount Rokko. He began to popularize the area, which resulted in Japan's first golf course being opened in 1903. It is still one of the mountain's attractions today.

Photos (from top to bottom): Rokko Cable Car, The view from the observation area, The Rokko Alpine Botanical Garden.
Photo Credit: International Affairs Planning Division, Kobe University.

Why "Kaze"?

There are two main concepts behind the title "Kaze", meaning "wind". Firstly, Kobe University's goal to innovate, creating a wind of change. Secondly, our location at the foot of Mt Rokkō, an area known for the invigorating wind of Rokkō-oroshi that blows down from the mountain range.

The calligraphy on the cover of "Kaze" was created by Professor Emeritus UOZUMI Kazuaki, a researcher of calligraphy at Kobe University.

Kobe University Magazine "Kaze"

In this issue...

Cover photo for Kobe University Magazine "Kaze" Issue 8:
Cherry Blossoms on Rokko-dai 2nd Campus

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(International Affairs Planning Division)

神戸大学

SPOTLIGHT

Developing the world's first Microwave Mammography

Next generation imaging technology enables instant detection of breast cancer

Professor KIMURA Kenjiro
Center for Mathematical and Data Sciences

'The development of microwave mammography has its roots in Professor Kimura becoming the first person in the world to analytically solve the 'inverse scattering problem', which was an unsolved problem in applied mathematics. This led to a technological breakthrough with the practical application of his 'scattering tomography theory'. The areas to which this theory can be applied have rapidly increased and it is set to develop into a huge industry.'

Every year, over 1,600,000 women worldwide are diagnosed with breast cancer; the cancer being fatal for over 500,000 of these patients. In Japan, this cancer affects around 78,000 women each year, with approximately 14,000 women losing their lives to it. However, it is said that more than 90% of patients are more likely to recover if breast cancer is detected early. The Japanese Ministry of Health, Labor and Welfare recommends that women over 40 get tested for breast cancer once every 2 years, however only 45% attend these screenings.

Professor KIMURA Kenjiro (Center for Mathematical and Data Sciences) has developed 'Microwave mammography' to increase the accuracy of breast cancer screening and resolve issues with existing X-ray mammography methods and high density tissue. He has created his own start-up with the aim of making this new screening technology the norm throughout the world and reducing breast cancer-related deaths to zero.

Highly precise breast cancer screening to enable early detection and treatment monitoring.

Q. What is the big problem with X-ray mammography, which is currently used for breast cancer screening?

Prof. Kimura: X-ray mammography, which is currently the world standard and the most widely used breast cancer screening method, is ineffective for detecting cancer in women who have high breast density. 79% of Asian women, 61% of Caucasian women, 57% of black women and 55% of Hispanic women under 50 have high breast density. Under X-ray mammography, this high-density tissue containing large amounts of collagen shows up white. This makes it impossible to distinguish from cancer, which also appears white.

Ultrasound is often used in conjunction with X-ray mammography, however ultrasound waves weaken within the breast tissue, so it is not possible to detect at any depth. In addition, there are reproducibility issues. The contrast in the results is low, meaning that even if AI is used, it is generally not possible to make an accurate judgement. In other words, current screening methods are not accurate enough.

Alternatively, microwaves are able to pass easily through breast tissue at depth as it's a electrically non-conductive material and are strongly reflected by cancer. Regular breast tissue has low electric permittivity whereas cancerous areas have higher electric permittivity due to the water molecules inside the cells and blood vessels.

Screening using microwave mammography merely requires the antenna to be moved across the surface of the breast.

By applying scattering tomography theory to microwave scattering we can generate a 3D image, so that only cancerous areas inside the breast are clearly rendered. In other words, the contrast in the resulting image is extremely high, preventing cancer from being overlooked.

Q. How is microwave mammography conducted?

Microwaves are electromagnetic waves used by cell phones and Wi-fi. By lightly scanning the surface using a transmitter that emits low level microwaves, the microwave radiation illuminates inside the breast from multiple points on the surface. Cancerous areas of breast tissue contain more water molecules than normal fatty areas. Microwaves scatter strongly across the boundary between these two areas.

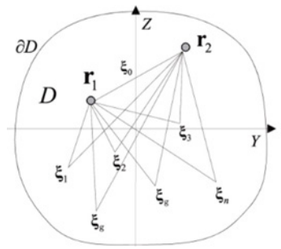
All the reflected data from these areas is calculated using the scattering tomography theory, allowing us to mathematically create third generation imaging in which cancerous areas can be clearly viewed in realtime. It is possible to clearly see breast cancer regardless of whether the patient has high breast tissue density or not, as the causative agents of high breast density are insulators.

Most importantly with regard to imaging is that the microwave mammography we developed has high reproducibility.

In other words, the exact same image will be generated regardless of the timing or the medical observer. Unfortunately, there haven't been any diagnostic imaging devices for breast cancer that can do this up until now.

Microwave mammography is a painless process, unlike x-ray mammography there is no need to compress the breast between two plates. With microwave mammography it is possible to detect cancerous tissues as small as 0.5mm, as well as cancer located deep within the breast or towards the armpits. Another advantage is that this screening method can be utilized on pregnant women too, as there is no x-ray exposure risk.

The advantages for doctors are that they can monitor changes in cancer as well as the effectiveness of treatments like chemotherapy. Understanding the progression of the cancer would allow doctors to evaluate and decide on treatment methods more easily. In addition, microwave mammography is easy to carry out; the same image will result regardless of who operates



$$G(\mathbf{r}_1,\mathbf{r}_2,\omega)=\iiint_D \varphi(\mathbf{r}_1\to\xi\to\mathbf{r}_2,\omega)d\xi$$

$$L\left(\frac{\partial}{\partial t},\frac{\partial}{\partial \mathbf{r}_1},\frac{\partial}{\partial \mathbf{r}_2}\right)\overline{G}(\mathbf{r}_1,\mathbf{r}_2,t)=0$$

$$\rho(\mathbf{r})=\lim_{t\to 0}\left[Tr\left[\overline{G}(\mathbf{r}_1,\mathbf{r}_2,t)\right]\right]=\overline{G}(\mathbf{r},\mathbf{r},0)$$

The basic equation for 'Scattering Tomography Theory' developed by Professor Kimura.

Becoming the first person to solve the 'inverse scattering problem'

Q. So why haven't microwaves been used in breast cancer screening until now?

In order for breast cancer screening using microwaves to be viable, the 'inverse scattering problem' needed to be solved. This was an unsolved problem in mathematics history.

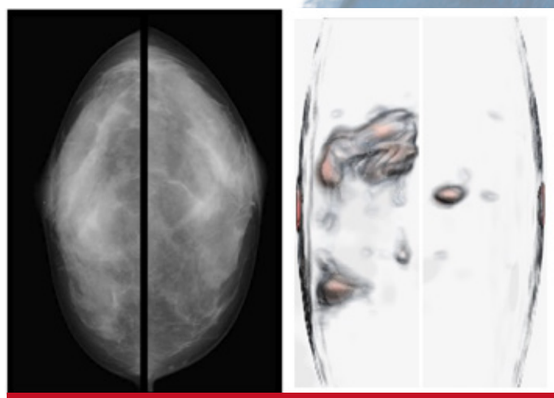
It involves determining the size, shape and location of an object from the scattering of the waves that hit it. For example, there is a tower somewhere in a lake but due to heavy fog you cannot see it. Waves are sent from the edges of the lake, rippling across the surface of the entire body of water and the ones that hit the tower scatter in all directions. By measuring these returning waves from various locations around the edge of the lake and analyzing this data, it is possible to theoretically determine the location, size and shape of the unseen tower.

This is the 'inverse scattering problem'. I have been interested in this since my twenties, and after a decade I was able to come up with a solution.

Q.You were the first person in the world to solve this problem?

Based on the results that is true but I wasn't conscious of it at the time. In addition to the 'scattering tomography theory', we succeeded in developing antenna and signal generating technology to emit and observe DC-20GHz ultra-wideband microwaves with the highest performance in the world.

In 2015, this project was selected by the Japan Agency for Medical Research and Development (AMED) and, by combining the theory and technology that we had developed, we produced a prototype device for microwave mammography. We were able to conduct clinical trials on around 400 patients, thanks to various medical institutions including Hyogo Cancer Center, Shinko Hospital, Kobe University Hospital and Okamoto Clinic. These results revealed that microwave mammography could achieve an extremely high breast cancer detection rate.



Left is an X-ray mammograph, right is a microwave mammograph of the same patient. The difference in fidelity is striking.

Q. What is the process for making microwave mammography the norm?

In order to obtain approval for the device domestically, trials will begin in FY2020. Normally it takes some years for a new medical device to be approved in Japan, however in April 2019, microwave mammography was chosen as a target for fast-track approval under the Ministry of Health, Labor and Welfare's Sakigake Designation Scheme. This means that the review period will be much shorter.

As of September 2019, we are collaborating with 10 companies in related industries through our Kobe University start-up company Integral Geometry Science (IGS) with the aim of making the widespread usage of microwave mammography a reality. We have also received capital venture investment (approximately 2 billion yen in total) towards this goal.

I established IGS in order to publicize my research results and have obtained related patents for 'microwave mammography' in 26 countries. Sales of the screening device will start in 2021, once the clinical trials have been concluded. We aim to have breast cancer screening centers using microwave mammography all over the world within the next ten years, with a hundred million patients being tested annually.

Microwave mammography: a trillion yen industry for Integral Geometry Science.

Q. Can scattering tomography theory be applied to other fields?

The first screening technology we developed based on scattering tomography theory was a contactless infrastructure testing method. The instrument that we developed can detect the location of fractures in concrete. Travelling at dozens of kilometers per hour, the testing equipment can visualize the 3D inner structure of concrete walls in real-time and its performance was highly evaluated.

Currently, non-destructive testing technology to visualize the inside of batteries accounts for the majority of IGS's sales. In recent years there have been incidences where lithium batteries in smartphones have exploded or caught fire. The technology that we developed visualizes electric current flow inside the battery, enabling abnormal current flow to be detected. It has been adopted by many industries in fields such as smartphone and electric cars. In the seven years since IGS was established, we have never gone into the red.

"From crime prevention to archeological surveys, imaging technology based on the scattering tomography theory has the potential to change how we look inside things."

Q. Will the mammography device make up the majority of your sales in the future?

That's correct. Up until 2028, we will be establishing breast cancer testing centers and locations to sell our device all over the world. Therefore, our annual sales target for this period is 630 billion yen, with mammography making up 396 billion yen of that goal. We plan to test one hundred thousand people in a year. At this point, IGS will become a trillion yen industry.

Q. Are there any other fields in which this technology can be applied?

The mathematics that have enabled this new imaging technology to be developed can be universally applied to the inverse scattering problem. In other words, this technology can be applied to every issue related to the detection of and seeing inside of an object. This means that the new technology will bring about innovation to said issues. We have received commissions from all over the world in various areas, including crime prevention, autodrive, resource prospecting, archeological surveying, and inspections for foreign objects in factory produce.

Q. What direction will your research go in next?

I am interested in the theoretical calculation of chemical reactions. For example, being able to mathematically predict chemical reactions perfectly via computer, such as the reaction between oxygen and hydrogen that produces water. In other words, it could become possible to do all kinds of experiments virtually. In drug composition research, experiments such as 'what happens if we mix Substance A with Substance B and they react?' are comprehensively carried out. Wouldn't it be wonderful if we could theoretically and accurately predict experiment results?

Q. Is this different to making predictions using AI (Artificial Intelligence)?

When a robot that could throw a ball into a distant box was developed, they did not input Newton's laws of motion. Instead, they had the robot learn about the results of throwing the ball from large amounts of data. The robot's AI was able to decide the appropriate speed and angle to throw the ball based on this. I am not interested in this kind of machine learning.

To begin with, I am interested in completely solving the finite temperature problem using mathematical physics. Subsequently, I would like to resolve the reaction path and other aspects theoretically and mathematically. It is embarrassing to talk about dreams but if I was able to develop such a system, I would like to build a factory in the desert. I would like to distribute software to researchers all over the world in which chemical reactions between the substances that you have selected are automatically simulated by the computer. The resulting compound is then produced by our factory. I would like to try to make this factory and software a reality through IGS.

Working with citizens to preserve local historical records

Protecting history & culture and connecting the past to the future

'Historical materials preserved by local areas in Japan are in danger of disappearing due to depopulation, the declining birthrate, the aging population, and disasters such as earthquakes and heavy rainfall.' says Professor OKUMURA Hiroshi, Dean of the Faculty of Letters and the Graduate School of Humanities at Kobe University.
As the leader of the 'Historical Materials Network'; Professor Okumura has created a system whereby specialists and citizens cooperate to preserve and utilize historical records.

He was presented with the 13th 'Yomiuri Shimbun Awoniyoshi Award' in recognition of his activities. This award was set up by the Japanese newspaper Yomiuri Shinbun to recognize the efforts of those who protect cultural heritage. His latest research project, which is informed by the activities of the 'Historical Materials Network', has been selected for a 2019 KAKENHI Grant-in-Aid for Specially Promoted Research by the Japan Society for the Promotion of Science (JSPS). This is expected to result in the development of a new academic field: 'Regional historical materials studies'. We spoke with Professor Okumura to hear his thoughts on activities to preserve historical materials.

From historical material preservation activities to the establishment of a new discipline

Q. Did you pave the way for the establishment of 'Regional Historical Materials studies' as a new academic field?

Prof. Okumura: You could say that but actually the Great Hanshin-Awaji Earthquake (1995) was the impetus for winning the 'Awoniyoshi Award'. At the time, academics in various fields only focused on solving issues in their areas of specialization. However, it was not possible for everyone to deal with the disaster and restoration efforts by themselves, so many people began to help with efforts outside their academic field. The same thing happened in the field of history and culture, and this led to the birth of a new academic field.

There was a reexamination of the relationship between the owner of the historical material and the researcher. Normally, historians receive donations of historical documents from members of the public and subsequently communicate their findings through journal articles and the like.

However, when a disaster such as the Great Hanshin-Awaji Earthquake occurs, the historical materials themselves are lost. Researchers realized that they had to do something in response to such situations. This led to the gradual establishment of regional historical materials studies as a new academic area. At the time, I was not thinking about establishing a new field of study. I was focused on the immediate need to protect historical materials and prioritizing activities to preserve records in the disaster-hit areas. Only afterwards did I begin to think about the significance.

Q. How are preservation activities carried out?

It has not been easy. To begin with, not all researchers had directly dealt with materials possessed by citizens and it was also hard for citizens to determine what would be considered a 'historical material'. Even if they receive a request from a researcher, they say things such as 'it's not as 'great' as a national treasure or an important cultural property.' (laughs). However, we researchers are not merely looking for 'great' things. We started to tell citizens that materials which are the basis for understanding regional history and culture, and the culture of Japan as a whole, can be historical records. Not only ancient manuscripts but also diaries,

photos, old books and tools can all be important historical records.

Q. To what extent do historical records still exist?

In Japan many materials that have an important link to our origins, as well as collections of historical experiences and culture, still remain in regional areas. For example, there was a system whereby each of the main members of a village had to agree to break the seal of a document which they had previously sealed. Consequently, various such records remain in temples, shrines and the places where village leaders of the time lived.

By our calculations, there must be roughly 2 billion Edo period (1603-1868) records in the entire country. It is unusual for a country to still have such a vast amount of regional historical documents; this is something distinctive about Japan.

The importance of preventative measures before disasters

Q. Do you also research restoration techniques for materials damaged by disaster?

Burned paper materials are especially difficult, however it is still possible to restore water or dirt-damaged items. When it comes to methods to 'rescue' documents, there are those used by professionals and those used as an initial attempt to recover the material. In the field of regional historical materials studies, we are developing preliminary rescue methods. These are steps that anyone can carry out using easily available items. For example, drying wet materials using kitchen roll or putting damp documents inside vacuum packs to remove the water from them. These methods can be used as an initial step before entrusting the work to a professional restorer, and as a way to deal with such damage in a disaster zone.

It is often thought that historical materials are beyond saving if they become dirty and start to smell. However, it is possible to preserve

"The significance of preserving historical materials can only be understood by society if their value is also understood."

these documents long-term by lightly washing and drying them. Traditional Japanese paper is strong and the black ink doesn't deteriorate much.

Q. Is digitizing historical materials also beneficial?

Of course digitization is an important preventative method. When the Tohoku earthquake occurred, many historical documents were lost in the subsequent tsunami. However, if photographs of these documents were taken beforehand, the information still remains, even if the original is lost.

This is why we are gradually carrying out exhaustive surveys (covering all historical materials) as a precaution. The aim is not to save everything in the event of a disaster, rather it is extremely difficult to manage historical materials if their existence is not known.

Also, the significance of preserving historical materials can only be understood by society if their value is also understood. It is vital that surveys into existing historical materials are conducted, and that the significance of this is conveyed to local people so that the materials can be preserved in the region. These steps are important for enabling the region to deal with this matter in the event of a disaster. To achieve these goals, we must establish 'Regional historical materials studies' as a discipline.

Expanding the activity network nationwide

These activities are spreading across the country?

Localized earthquakes have occurred at a rate of one every 2 years since the Great Hanshin-Awaji Earthquake. We have repeated the process of communicating our experience to these disaster-hit areas, leading to the establishment of regional (historical materials) networks. At the time of the 2011 Tohoku Earthquake the Tohoku University-based 'Miyagi historical materials preservation network' was the center of these disaster response activities. This group is made up of people who started activities with us at the time of the earthquake in the north of Miyagi Prefecture, which preceded the Tohoku Earthquake. At present, groups like this are active in around 25 areas of Japan and we are carrying out fundamental support activities in order to expand the network.

Q. Do many young people take part too?

Yes, there are many. At Kobe University, the network mainly consists of graduate students and there are also many students in the Ehime, Shimane and Ibaraki networks in particular. The students are interested in rediscovering the region or in understanding local society. For students in the Faculty of Letters who are researching old documents, the opportunity to talk directly to the owners of historical materials enables them to reconfirm the societal significance of their research. If they become teachers or curators in the future, they will be able to reexamine regional culture and ensure that this knowledge is passed on.

Q. Are citizens also involved?

Of the 300 members that make up the historical document network, half are regular citizens.

They carry out volunteer tasks such as those relating to the group's general operations and cleaning damaged materials. The members range from high school students to elderly people. The groups attract various people; from those who became interested in history when they were students, to those who want to volunteer.

Little by little, knowledge of our activities spread and, around the time of the floods in Eastern Japan in October 2019, the slogan 'Don't throw away historical documents!' was featured in the mass media and various publications. Historical materials networks in each area started to get SOS calls from people who have such documents.

New avenues in history studies and global viewpoints

Q. What are the topical issues in the regional historical materials field of study?

We historians believe that we live in an age where ways of life that have been part of Japanese culture for almost one thousand years are disappearing. For example, up until the 1960s, cows were a part of people's everyday lives, yet nowadays you don't see cows anywhere.

Boiling rice over an open fire, and the relationship between people, mountains and trees are other aspects that are vanishing. If we look at this from the perspective of how people live, we can see that great fundamental changes have taken place. Furthermore, the people who can remember the era before these changes happened are over 80 years old.

The danger that regional history and culture will disappear has been expedited by the low birthrate and aging population. Therefore it is highly important to look at the preservation of historical materials from this viewpoint as well as protecting them from disasters.

There is also the concept of 'surviving history studies'. This is an attempt to understand, from a historical studies point of view, how Japanese people have been passing down knowledge regarding their lives in relation to nature.

For example, when it rains heavily, there are areas that flood easily and areas that don't. The areas which have been settled since the Edo Period are not prone to flooding. Building houses in these areas and creating a settlement; this knowledge enabling people to live has been passed down.

However, history studies have yet to sufficiently focus on this wisdom. The historical materials in which these fundamentals of society remain are indispensable for ensuring that this knowledge is reexamined.

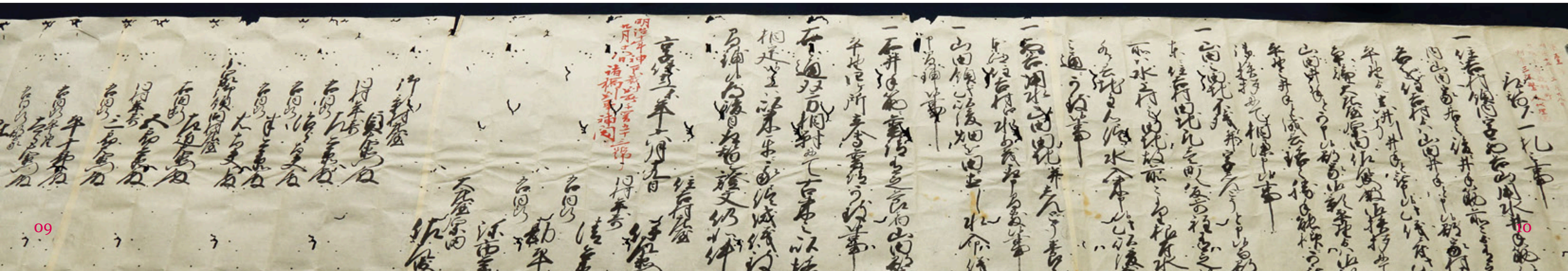
Q. This conjures up an image of history studies becoming closer to people's lives

Yes. However, it is difficult to come up with a methodology as it is not something that can be achieved through individual research. Actually, the research topic 'New Research Field for Resilient Local Communities in a Country of Natural Disasters', which was selected for the JSPS KAKENHI grant, began from this idea. The project involves joint research with over ten other people. As well as collating the practical research conducted by historical materials networks nationwide, we are also working on a methodology for researching 'surviving history studies'.

Our other goal is to explore shared issues with researchers from all over the world. Although the specific circumstances may be different, the disappearance of culture is a worldwide occurrence.

Last year, a symposium on cultural heritage was held at Kobe University Brussels European Center (KUBEC) in Belgium. In Europe as well, there is a train of thought regarding the various types of cultural heritage, beyond national treasures and important cultural properties, and their connection to the survival and preservation of regional societies. According to a presentation at the symposium, issues relating to this were raised in the midst of organizing the EU's '2018 European Year of Cultural Heritage'.

This way of thinking about cultural heritage in relation to regional society is currently gaining momentum in countries around the world. Considering the significance of this phenomenon is also a theme of the project.



Kobe University's Campus Asia program

Cultivating Risk Management experts through specialized study at Japanese, Chinese and Korean universities

Double Degree program graduates

Kobe University's Campus Asia master's program aims to train graduate students so that they can become experts in managing multifaceted risks in the context of international relationships and globalization in East Asia.

One area of study that is related to Risk Management is 'humanitarian logistics'. Japan has experienced large-scale natural disasters, such as the Hanshin-Awaji earthquake of 1995, that impacted Kobe University, and more recently the Great Tohoku earthquake in 2011. When a natural disaster or other crisis occurs, it is not sufficient to merely wait for help from other areas or countries. Quickly facilitating cooperation through human networks is crucial during a crisis, as resources are limited. In order to manage the related risks, it is necessary to thoroughly research what can be done in such situations, cultivate human resources who can respond to these scenarios and embed this knowledge and expertise into societies.

With these concerns in mind, Kobe University established a 'Campus Asia' framework. 'Campus Asia' (Collective Action for Mobility Program of University Students in Asia) is a Japanese government-led initiative that aims to strengthen exchange and cooperation between universities in Japan, China and South Korea. Through this framework, an alliance was formed between Fudan University (China), Korea University (South Korea) and Kobe University. These 3 academic institutions have been offering a shared education program to cultivate specialists in Risk Management since 2011, entitled "Program for Careers on Risk Management Experts in East Asia" . This double degree master's program allows students to benefit from the strengths of each university's high quality teaching while experiencing the different education systems of the three countries. For example, a student majoring in public policy studies at Fudan University can also obtain a master's in economics at Kobe University, allowing them to accumulate a wealth of knowledge by taking advantage of the specializations of each institution. Though fieldwork, expert-led seminars and online discussions, students can gain important knowledge and experience from each university and develop the analytical skills necessary for them to contribute to global society. In addition to the double degree program, there is also a credit-transfer exchange and triangular program allowing students to spend a semester studying at the partner universities.

Above: Fieldwork in regions affected by the Great Tohoku earthquake.
Below: Attendees at one of the joint symposia held by the universities.

A network of around 150 graduates has been developed over the 9 years since the Campus Asia program began. It is hoped that this network will play a leading role in facilitating cooperation based on humanitarian logistics between these three countries. The expertise and insight that students gain through the program is high demand among international organizations, NGOs/NPOs, and international divisions of administrative bodies in countries worldwide. There is also growing demand among private enterprises and media organizations with a presence in East Asia. Consequently, graduates of the Campus Asia program have the potential to forge a career path in a variety of sectors across the globe.

Further information about Kobe University's Campus Asia Program can be found here in Japanese, Chinese, English and Korean: http://kobeucpasia.wp.xdomain.jp/en/

International voices

Studying, club activities and part-time work: *fulfilling dreams through various experiences*

Naufal Afiq Bin Nasaruddin

3rd year student, School of Business Administration

Originally from Malaysia, he is known as 'Nau-san' in Japan because his full name is very long. He is currently living alone and is consequently feeling grateful towards his mother.

Q What were you doing before you came to Kobe University?

I studied at a Japanese language school for about 2 years after graduating high school. I also wanted to become a chef- so I was unsure about whether to go to vocational college or study abroad in Japan. In the end I decided to study abroad as a national scholarship student because it would cost my parents less money. I came to Kobe University because I liked the atmosphere of the Kansai region and my teacher at the language school recommended it to me.

Q What is your life like at Kobe University?

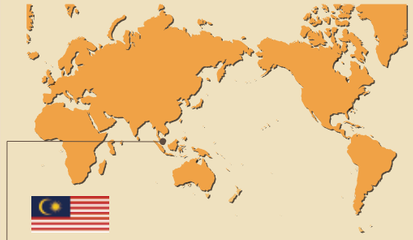
I'm in the School of Business Administration, so I study about business strategy and management. My professors teach in a way that is easy to comprehend and if there is something I don't understand my friends in the same school will explain it to me. This has been a big help.
Also, I'm a member of the 'Pen pen gusa' sign language club and I have a part time job at a teppanyaki restaurant.

Q Tell us more about the club's activities and your part time job.

I had been previously interested in sign language and when I started at university I wanted to try something new, so I joined the 'Pen pen gusa' club. Before I joined the club, I thought that sign language was the same all over the world but it is in fact completely different depending on the country, and this surprised me (laughs)! If I have chance, I would also like to learn Malaysian sign language. Kobe University's sign language club has a very relaxed atmosphere and we do fun activities, like meeting up to chat in sign and visiting after-school centers to teach sign language.
My part-time job has not only been a way to earn money, it has also taught me a lot. I have learned about Japanese customer service and how to interact with those who are above you. It is very difficult to learn Japanese keigo (polite language) but through my experiences working at the restaurant I was able to remember how to speak in certain situations.

Q What are your future goals?

In the future I want to be involved in business management. I have learned a lot of Japanese so I would like to act as a bridge between Malaysia and Japan.
Also I haven't given up on my previous dream of becoming a chef. Eventually I would like to run my own restaurant. I would like to have many experiences and work hard to achieve this dream.



Malaysia

Located in Southeast Asia, Malaysia is a constitutional monarchy established on parts of the Malay Peninsula and Borneo Island. It is a multi-ethnic and multi-cultural country with a population of about 32 million. The Petronas Twin Towers and Jamek Mosque in the capital of Kuala Lumpur are very famous.

With sign language friends.

Group photo after a 'pen pen gusa' stage performance

Approximately 1,400 international students from countries around the world are currently studying at Kobe University.
In this corner, our international students introduce their native countries and offer some insights on studying abroad in Japan.

Student Supporters

How Kobe University support group members help their fellow students

At Kobe University, there are various support groups that aim to help students enjoy their life on campus with a peace of mind.
This time, we interviewed two members of different support groups who provide assistance to other students.

Student Supporter at the Support Center for Campus Life

YAMAZOE Tomoaki

(4th year Chemistry student in the Faculty of Science*)

Q. What kind of support do you provide for other students?

We conduct support activities for students who require assistance with their studies or student life due to a disability or other reasons.
For example, I took part in an activity last year where we conducted a survey into using a wheelchair on campus. Kobe University's Rokkodai campus is located near the mountains, so there are lots of steep areas and steps making it difficult for people in wheelchairs to get around. We tried traversing the campus in wheelchairs while referring to the 'Barrier Free Map' made by the university and informed them of problem areas and easier routes.
We also help hearing impaired students by typing up lecture contents in real time. There are currently no students at Kobe University who require this support, so members of our group help students at other universities through an NPO. They are sent video or sound data via the internet and type up the contents.

"Being a Supporter gives you the opportunity to learn about how people around you experience the world differently and see it from their point of view."

Q. What have you realized through carrying out student supporter activities?

Through carrying out the wheelchair study, I realized that there are not only many slopes but also lots of narrow areas. Some of the pavements are only just wide enough to fit a wheelchair and some of the bus stops are also narrow, making it difficult to board the bus in a wheelchair. I noticed that you have to avoid obstacles in a wheelchair that you don't pay attention to when walking.
Although we can't do anything about some of these aspects, I hope that the results of our survey report can be used to make improvements.

Q. What would you like students who are interested in Supporter activities to know?

Studying abroad is one way to experience a different world but being a Supporter gives you the opportunity to learn about how people around you experience the world differently and see it from their point of view. Being a student supporter allows you to do something that benefits other people.
Understanding a bit about those who are hearing impaired or using a wheelchair helps you become conscientious about what you can do if you see someone who needs support. I would like those who are even slightly interested to join our activities and experience a different world.

Peer Supporter

MISHIMA Haruka

(4th year student in the School of Business Administration*)

Q. What does being a Peer Supporter involve?

'Peer' has a similar meaning to friend, and as peer supporters we provide a space where other students can discuss things with us. This system only just started in October 2019. Currently, I have a booth in the Learning Commons on Tsurukabuto 1st Campus one lunchtime a week and anyone can come and talk to me.
It doesn't matter how small the matter is that you want to discuss. For example, if you can't find any interesting activities to do on campus, I can introduce projects that I know about.
Before this peer support scheme was set up, there was a discussion booth aimed at new students and the discussion topics at that time included things like class registration.

"I would like the activities of our group to continue and for many peer supporters to join."

Q. What do you keep in mind during these discussions?

I always try to keep in mind what the students who come to talk to us want. Some want advice or support, and others just want to talk to someone. We are called 'Peer Supporters' but I think that more than helping other students, we are able to think over the topic together on an equal footing. I also think that we should try not to meddle in the other students' problems.

Q. What would you like students who use the peer support service to know?

I would like them to know that they are welcome to casually use this service and that any topic is fine. There have been times when I too had worries relating to student life but I thought that it was a little difficult to discuss them with university staff. Of course you can come and talk to a peer supporter if you are having problems, but it is also ok to come to our booth if you just want someone to listen to you or if you don't have someone to talk to. Just chatting is fine but if you are seriously concerned about something we can connect you to an appropriate discussion service. We can also accommodate small matters as well, so please come and talk to us.

Q. What would you like students who are interested in the peer support service to know?

It is fine to come to our booth for the first time, even with a light topic such as 'I want to try doing a new extracurricular activity.' If you are interested in becoming a peer supporter, please sign up. We get thorough training prior to starting our activities. We have just started so we are still finding our way but I would like the activities of our group to continue and for many peer supporters to join.

Machi Project

Nada Ward

Students of architecture revitalize the local community

Machi Project Leader

HIGAKI Yuichi

1st year achitecture student, Graduate School of Engineering*.

'Machi Project' (Town Project) is a student group that carries out town planning activities in Nada Ward- the area of Kobe City where Kobe University's main campuses are located. Run by students from the Department of Architecture in Kobe University's Graduate School of Engineering, the Machi Project began in 2007. Over the past 13 years it has become part of the Nada community, giving students the opportunity to use their ideas to enrich the local area.
We spoke to the group's 13th leader, HIGAKI Yuichi, about their recent activities.

Q. What is Machi Project?

It is a project by students from the Department of Architecture. It began with the initial idea that students who study architecture and urban planning can plan a town from a unique perspective.

Our activities can be divided into two categories: 1. Taking part in local events and festivals, and 2. Holding our own local event every year at the end of August. Currently there are around 20 members in the group.

Q. What do the members do at local events?

It depends on the event. For example, we carry the Mikoshi every year at a local festival. Mikoshi are large, heavy portable shrines made from wood that are carried between shrines in the local area during some festivals. They usually require at least ten strong people to lift them. Local residents told us that it is difficult for them to hold a Mikoshi carrying festival because the number of young people in the area is decreasing. Therefore, we take part in the festival to help ensure that the custom survives. This revitalized the community and local residents also took part in our own event in the area, leading to the establishment of positive mutual exchange between us and the local people.

Town planning is not limited to building and city design but also includes the formation and maintenance of human networks and communities. We study about both in our classes at the university, however I think Machi Project provides us with an opportunity to put these ideas into practice rather than merely studying them.

Q. You took part in the 'Rokko Marché' event last October, didn't you?

This event was organized by a real estate company in Nada and was held in the company's large parking lot. Local shops set up stalls and many residents from the area enjoyed attending. The event was a bigger success than I had imagined, with stalls lined up selling traditional side dishes, roast beef from Japanese black cattle, wine, curry, vegetables, bread and many more.

We originally received an invitation from the company in mid-August saying that they would like to organize the event with the help of university students. The company let us be involved in the planning process. From September onwards we attended planning meetings to discuss the event contents and progress. They accepted various ideas from us, including our plan to hold a workshop. In the end, they also enabled us to utilize the strengths of the architectural department by letting us design the venue. We came up with 12 design ideas in total, discussed them at the planning meeting and then refined them. It made us happy to see the things that we had designed become reality.

On the day of the event, our friendship bracelet making workshop for children was also a success. A local business and university students working together to hold an event for the community builds interpersonal relationships, and reflects the name of our group well.

Project members taking part in Minume Shrine's Fall Festival in 2017.

*at the time of the interview

Q. Please tell us about your own event 'Machi T Fest'

One of the concepts of our group activities is to reuse things that the town doesn't need to create something to brighten up the community. The 'Machi T Fest' event involves collecting old T-shirts from residents and reusing them to make decorations that change the atmosphere of a local spot. Held for the 13th time last year, this event was started with the aim of making it the face of Machi Project.

Local places, such as shops and elementary schools, put out collection boxes so that we can obtain old T-shirts for the event. We always ask them to put out the collection boxes at the same time every year. Therefore, when local residents see the boxes they say 'It's already this year's T-shirt collecting month?' (laughs).

Q. How do you reuse the T-shirts?

For example, we make a 3 meter tall frame using materials such as wooden posts and gardening canes, and install it in the park where the event takes place. On the day of the event, children draw pictures on the old T-shirts. The frame is then gradually decorated by attaching the old T-shirts to it one-by-one like sails (see the photo below). Even though we are only attaching colored pieces of cloth to a thin frame, the children really enjoy it. They take photos with their parents in front of the T-shirt that they decorated. Last year we tried illuminating the installation at night for the first time.

Our other games and activities were also well received and included ring throwing, jump rope and friendship bracelet making. The materials for these activities, such as the rope for skipping and the bracelets, were all made from old T-shirts.

Q. How do you raise funds for your activities?

We are subsidised by Nada Ward and we also ask for support from local shops.

Q. Tell us about the posters that you have started making.

We have connections with the WeLv Rokkomichi Ichibangai shopkeeper's association because we have held joint events with them before and have also helped out with the Christmas illuminations. We thought that we would design some interesting posters to brighten up the WeLv shopping center. We do the planning with each tenant, then the group members take photos and create the poster design. Afterwards, we put up the finished poster inside the shopping center.

Q. You are a multi-faceted group.

Machi Project has been conducting activities in Nada for over ten years, and our connections with the local community are continuing to expand. We know all kinds of people (laughs).

Q. Tell us about your upcoming activities.

I would like to increase the number of opportunities for us to make our plans into reality, like we did with the previous Rokko Marché. For this to happen, I think that is important to value our connections with the community, including local businesses. We feel that our activities are very worthwhile when we see local people enjoying events that we have been involved in. I would like to keep contributing to the continuation of these local activities.

Above: Students were also responsible for the Rokko Marché venue design and decorations.
Below:The 'Machi T Fest'. An installation is decorated with T-shirts that children have illustrated.

International Collaboration

Europe

10th Anniversary KUBEC Symposium a resounding success

Kobe University Brussels European Centre (KUBEC) marked its tenth anniversary with a symposium on "Open Science, Evolving Societies: New Horizons for EU-Japan Research". Held in Brussels, Belgium on October 22, it attracted over 100 policy makers, researchers, students and business people from both Japan and Europe.

KUBEC's Executive Director SAKAI Kazunari presided over the event, and opening addresses were given by Kobe University's President TAKEDA Hiroshi, Vrije Universiteit Brussel (VUB)'s Vice Rector for Internationalisation Romain Meeusen, Ambassador KODAMA Kazuo (of The Mission of Japan to The European Union), and Director-General Jean-Eric Paquet (of the European Commission's DG for Research and Innovation). All expressed hopes that the SPA (Strategic partnership agreement) signed in July last year would led to greater research collaboration between Japan and Europe.

The three breakout sessions covered 1. The EU-Japan SPA and EPA (Economic partnership agreement), 2. Food technology, and 3. Cultural heritage. These sessions provided a platform for presenting the latest research outcomes and policy initiatives, in addition to prospective collaborations. The audience was treated to inspiring presentations that led to question and answer sessions followed by lively discussion. The presenters also had an opportunity to discuss plans for future joint research projects. Interactive workshops corresponding to the themes of three sessions were held in the afternoon. The symposium's theme of advanced research through EU-Japan cooperation resonated not only with researchers but also with policy makers from both Europe and Japan.

Closing remarks were made by Kobe University's Executive Vice President OGAWA Matsuto (in charge of Research and Information Management) and VUB's Vice Rector Hugo Thienpont (of Innovation and Industry Relations). They thanked the attendees and contributors from both universities for making the symposium a success and expressed hopes for the continued expansion of student and researcher exchange between Europe and Japan.

Since the establishment of KUBEC in 2010, Kobe University has succeeded in fostering exchange agreements with 140 influential universities in Europe. Furthermore, since the 7th Brussels Symposium, this annual event has been jointly held with VUB, where the KUBEC office is located. This has led to numerous opportunities for European researchers who are involved in research collaboration with Kobe University faculty to participate in these symposia.

UnILiON Special Open Talk held in Brussels

A seminar was held at the Kobe University Brussels European Centre (KUBEC) on the theme of "New Opportunities for EU-Japan Cooperation in Research and Innovation: from Horizon Europe to Japan's Moonshot Programme" on February 7. This event is a part of the activities of UnILiON (Universities Informal Liaison Offices Network) which is a network of universities and research institutes that have liaison bases in Brussels. The seminar was hosted by KUBEC and was a big success, with 46 participants from UnILiON, neighbor universities and research institutes and governments engaging in lively discussions about initiating and expanding collaboration between Japan and Europe.

Mr. Pierrick Fillon-Ashida introducing the Horizon 2020 and Horizon Europe programs for research and innovation.

Asia

Joint forums held with Shanghai Jiao Tong University

The 'Kobe University- Shanghai Jiao Tong University Joint Forum (KUAREF series)' and 'The second "Innovation X Cooperation" Japan-China Enterprise Innovation Cooperation Forum' were held in Shanghai on December 6 2019. The theme was 'Healthcare Industry and Social System Innovation in Ageing Societies'. Five highly specialized speakers from both China and Japan gave keynote lectures based around this theme from industrial, governmental and academic perspectives. Professor KOWA Hisatomo of the Graduate School of Health Sciences at Kobe University gave a lecture about the development and implications of his dementia prevention project. This was followed by a productive panel discussion in which discussants from both Shanghai side and Kobe side exchanged opinions on how China and Japan could work together to tackle the issues faced by ageing societies.

Americas

Fourth symposium held by the Honolulu Office of Kobe University

On February 4, "The 4th HOKU Symposium for Advanced Interdisciplinary Research Collaboration between Kobe University and University of Hawai'i" took place at the Hawaii Imin International Conference Center in Honolulu, Hawaii.

The morning session was conducted on the theme of "History and Literature of Japanese Americans in Hawaii", with presentations on literature, culture and history from researchers of Kobe University, Nihon University and the University of Hawaii.

The afternoon session's theme was "Economics for Sustainable Society in Hawaii and Japan". Professor Denise Konan, Dean of the College of Social Sciences at the University of Hawaii at Manoa, gave a keynote speech on solar power in Hawaii. This was followed by Kobe University and University of Hawaii academics giving presentations and exchanging opinions on the current worldwide topic of 'Sustainable Society' from an economics standpoint.

Closing remarks were given by Dean Konan, in which she expressed her hopes that the cooperative relationship between the University of Hawaii and Kobe University, which has existed for nearly 30 years, would be further developed. As the symposium came to an end, attendees were able to share valuable academic insights while discussing possible future academic collaborations.

Kobe University will continue to promote cooperation and exchange with American and Pacific institutions by holding positive joint academic events like the HOKU symposium.

Kobe University establishes new liaison offices in Australia and the USA

On April 1, the university opened the "Kobe University Liaison Office in Perth" with the cooperation of Hyogo International Association. Located within Perth's Hyogo Prefectural Government Cultural Centre, it will serve as a base for education and research exchange in Australia.

On the same day, the Kobe University Liaison Office in Seattle was set up to expand the stateside activities of the university's Honolulu Office. Kobe University hopes to further promote and strengthen international cooperation with universities and institutions in Australia and the Americas through the establishment of these two new bases.

KOBE UNIVERSITY

Founded in 1902
4 campuses | 10 faculties | 15 graduate schools

Kobe University's 'ROKKO-SAI' Festival

'Rokkosai' is the annual Kobe University festival for the campuses located in Rokko. A large number of the university's various clubs take part- either by showcasing their skills through performances or demonstrations. This big event is held on Rokko-dai 1st Campus and attracts around 40,000 attendees including local residents, student's families and acquaintances.

Last year's festival, held on November 9 and 10, featured a juggling show and a traditional Japanese archery demonstration from the respective clubs, in addition to a wide range of different dance and music performances. Other attractions included a stand-up comedy contest and a game to find Kobe University's Uribo mascot. Many club members also set up their own food or drink stalls- there were around 150 stalls in total over the course of the two days.

We hope you enjoyed reading Kobe University Magazine "Kaze" Vol. 8 (April 2020)
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