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Kobe University Newsletter "Kaze"

Vol. 09

October 2020

SPOTLIGHT

Fostering Global Leaders to propel the Maritime Nation of Japan

RESEARCH AT KOBE

Making Social Trends visible with Network Science

STUDENT FEATURE

Building a Formula-style racing car from scratch

Fukae-maru and the ten-year plan to survey the Kikai caldera

The training ship Fukae-maru, part of Kobe University's Graduate School of Maritime Sciences, has been utilized in the education of marine specialists and to conduct various research activities. The current ship is the third training vessel.

It is not only used for student's practical training and various experiments but is also used for other universities' crew training, lectures open to the general public, elementary and junior high schools' field trips, and industry training sessions, among other applications. Survey voyages to Kikai Caldera (located in Kagoshima) have been conducted by the Kobe Ocean-Bottom Exploration Center (KOBEC).

The initial 15-day survey voyage took place in October 2016. It involved monitoring the magma chamber in the caldera and conducting underwater strata probing using an airgun, in addition to measuring the depth using a multi narrow beam echo sounder.

Six of these survey voyages have been conducted so far as part of a 5 to 10 year plan to carry out continuous research in the vicinity of the caldera. Becoming the first in the world to confirm the giant lava dome's existence is just one of the numerous achievements of this research so far. As of October 2020, KOBEC is currently conducting another survey voyage.



Fukae-maru facts

Overall length: 49.95m
Beam: 10m
Gross Tonnage: 449 tons
Maximum capacity: 64 persons



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...

SPOTLIGHT

- 3 Fostering Global Leaders to propel the Maritime Nation of Japan

RESEARCH AT KOBE

- 7 Making Social Trends visible with Network Science

EDUCATION

- 11 Kobe University's V. School: Aiming to be a Global Hub for Value Creation
- 14 International Voices

STUDENT FEATURE

- 15 Always aiming higher: Building a Formula-style racing car from scratch

SPECIAL REPORT: KOBE AGAINST COVID-19

- 17 Kobe University 'With COVID-19' symposium held
Kobe University receives 10m. yen research grant from Sumitomo Mitsui Trust Bank to develop coronavirus vaccine

INTERNATIONAL COLLABORATION

- 18 Chinese students and graduates donate masks to Kobe University
International Academic Exchange Meeting held with Tianjin Medical University

ABOUT KOBE

- 19 2020 Facts & Figures

Cover photo for Kobe University Magazine "Kaze" Issue 9:
Autumn leaves on Rokkodai 2nd Campus.

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(International Affairs Planning Division)

神戸大学



Fostering global leaders to propel the maritime nation of Japan



Fukae-maru on a survey voyage to investigate the Kikai Caldera.

Kobe University has been promoting maritime-based education and research since merging with the Kobe University of Mercantile Marine in 2003. Subsequently the Kobe Ocean-Bottom Exploration Center (KOBEC) was established in 2015 in order to foster highly specialized human resources who are experts in deep-sea resource development and surveying technology. The Graduate School of Maritime Sciences' training ship 'Fukae-maru' has carried out investigations into the Kikai Caldera, a large-scale submarine depression formed by supereruption of a volcano off the coast of Kagoshima. Fukae-maru's survey voyages have resulted in many accomplishments, including the confirmation of the existence of a giant lava dome inside the Kikai Caldera.

Kobe University has started the 'Kaijin Project' in order to directly utilize these strengths to enhance the functionality of the university. We spoke to Professor TATSUMI Yoshiyuki, who is the director of the Research Alliance for Human and Ocean Coevolution (RAHOC) and a Special Advisor to Kobe University's President, regarding the university's successive large-scale plans to establish a new faculty and research organization under the slogan 'Umi no Kobe Daigaku' (Oceanic Kobe University).

Interviewee Profile

TATSUMI Yoshiyuki

(Special Advisor to the President/ Director of the Research Alliance for Human and Ocean Coevolution)

Professor Tatsumi was born in Osaka in 1954. He graduated from Kyoto University's Faculty of Science and obtained his PhD from the University of Tokyo's Graduate School of Science. Since then he has held a variety of positions, including academic researcher at The University of Manchester (UK), professor of Kyoto University's Graduate School of Science, professor of the University of Tokyo's Ocean Research Institute, program director of JAMSTEC's Institute for Research on Earth Evolution, professor of Kobe University's Graduate School of Science, and director of the Kobe Ocean-Bottom Exploration Center. In April 2020, he was appointed as a Special Advisor to Kobe University's President and became the director of RAHOC. His specialization is Magmatology.



Establishing a new faculty, a new vessel & a new research organization

Utilizing Kobe University's strengths as a comprehensive university to advance extensive maritime research and education

The Kaijin Project is one of the initiatives to strengthen Kobe University's functionality in line with the University's 2015 Vision of becoming an outstanding research university that excels in advanced and interdisciplinary research, based on the ideal of creating 'harmony between theory and reality'. At the center of the Kaijin Project is the new Faculty of Oceanology, which will be established in April 2021.

The Three Pillars of 'Umi no Kobe Daigaku'

Why is Kobe University promoting maritime-based research and education?

Professor Tatsumi: It is vital to make good use of the university's strengths in order to turn Kobe University's 2015 Vision into reality. With regard to the ocean, we are a university that has a training ship and this is rare even within Japan. The Graduate School of Maritime Sciences' training vessel 'Fukae-maru' is equipped with the latest investigative equipment to conduct deep-sea investigations. This training vessel serves as the basis for our development plans to directly enhance Kobe University's performance.

In addition, Kobe University is located in the international port city of Kobe. A unique culture of maritime industries and related businesses centered on the international movement of goods was born in Kobe, therefore it is Kobe University's mission to carry out research and development in this area, and cultivate human resources that can propel the maritime nation of Japan. I would like to contribute towards increasing Japan's presence in the international maritime community through our activities.

How will this be achieved?

Education, Operation and Research are the three pillars of this project. For 'Education' we will establish a new faculty, for 'Operation' we will set up a new center to work towards efficient ship operation as well as constructing a new ship. As for the third pillar, we will establish a new research organization.

First of all we will set up the new Faculty of Oceanology, which will replace the current Faculty of Maritime Sciences. The new faculty will provide students with specialized and fundamental knowledge of the coevolution of life on ocean planets and Earth, sustainable development and utilization of ocean resources, and coexistence between the ocean and humans (for example, marine policy). With this knowledge as a base, the faculty will cultivate global leaders in Oceanology who can lead the international maritime community, ocean experts that can propel deep-sea investigations, developments and utilization, as well as Shindai (Kobe University) seafarers who can not only serve as ship captains or chief engineers but can also engage in the business world.

How will this be different to the current Faculty of Maritime Sciences?

In order for Japan to take the lead as a maritime nation, it is necessary to emphasize research and development in addition to the cultivation of necessary human resources. We will establish two types of entrance examination in order to achieve this; a humanities/social sciences-centric exam and a sciences-centric exam. The current Faculty of Maritime Sciences tends to be focused on science and technology. However, the new faculty will also be open to students with backgrounds in the social sciences, and will aim to foster human resources with an integrated knowledge of both the sciences and social sciences. Dealing with ocean-related issues from an integrated social and scientific approach will be another distinctive feature of the new faculty.

An education system to cultivate ability and wide-ranging perspectives beyond specialization

What will the new faculty's curriculum be like?

First of all, students will take the 'Ocean Literacy Education' course after entering Kobe University. From the fundamental concepts of the joint evolution of the ocean and life, and the relationship between humans and the ocean, they will learn about how people utilize and develop the ocean and what kind of pressing issues need to be tackled next. Part of this 'Ocean Literacy Education' course is not only for those in the new faculty but can also be taken by students from other faculties.

Furthermore, we will offer 'Ocean Active Learning' which utilizes the Fukae-maru to deliver practical learning experiences of on-board team work and cooperation. This allows students to experience activities that they cannot do on land while getting a feel for maritime rules and the actual equipment on the ship, which will inform their specific areas of specialization.

With regard to specialized education, we will establish a Maritime Officer License Course for students aiming to obtain a seafarer license certification, in addition to Maritime Policy Studies, Basic Marine Science, and Marine Technologies & Marine Science courses. Students will be able to acquire well-balanced, maritime expertise by choosing

SPOTLIGHT

to take a major course, which will deepen their specialization in a specific area, as well as minor courses, which will broaden their range of expertise.

In addition, we will also offer the Ocean BDL (Beyond Disciplinary Learning) workshop, which aims to break down the borders between different fields of study. Students with different majors will work together in groups, giving them the ability to look at issues from a bird's-eye view and resolve them through discussion and team work.

One of the main cornerstones of the new faculty's curriculum is the 'Ocean Internship', which will enable students to increase both their specialization and adaptability through work experience in related industries or research institutions.

By implementing this education system, we are aiming to produce human resources who possess wide-ranging knowledge of both maritime-related natural sciences and social sciences alongside the ability to resolve social issues from a global perspective, are high level specialists with good business sense, and can bring the next generation of ocean-related policies to the world.

Building a new ship and establishing a new research organization

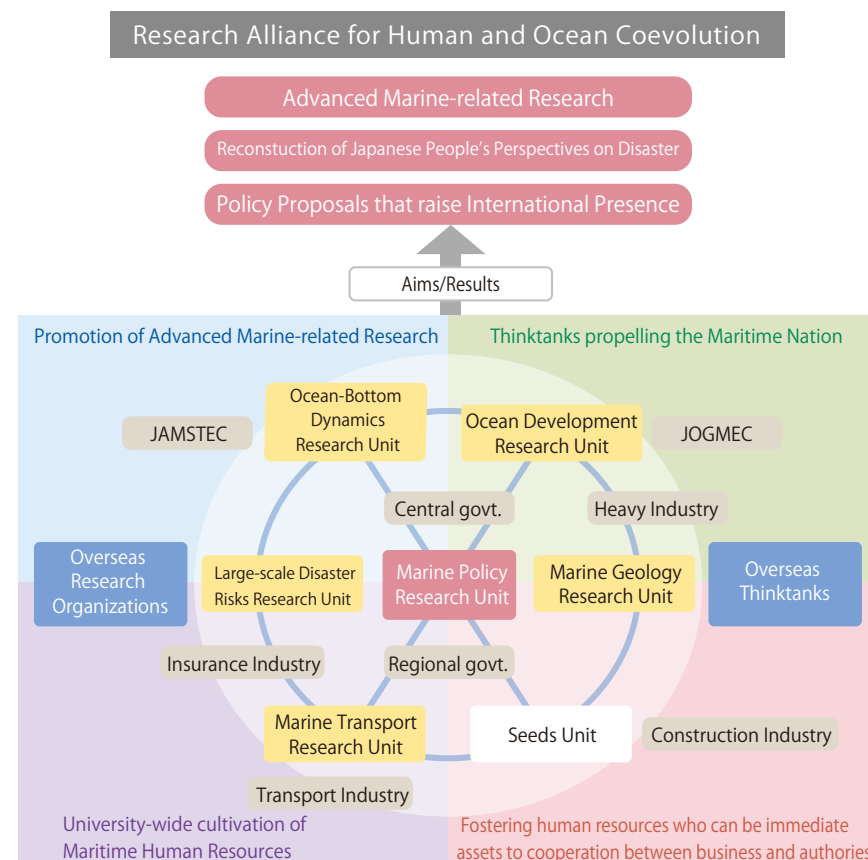
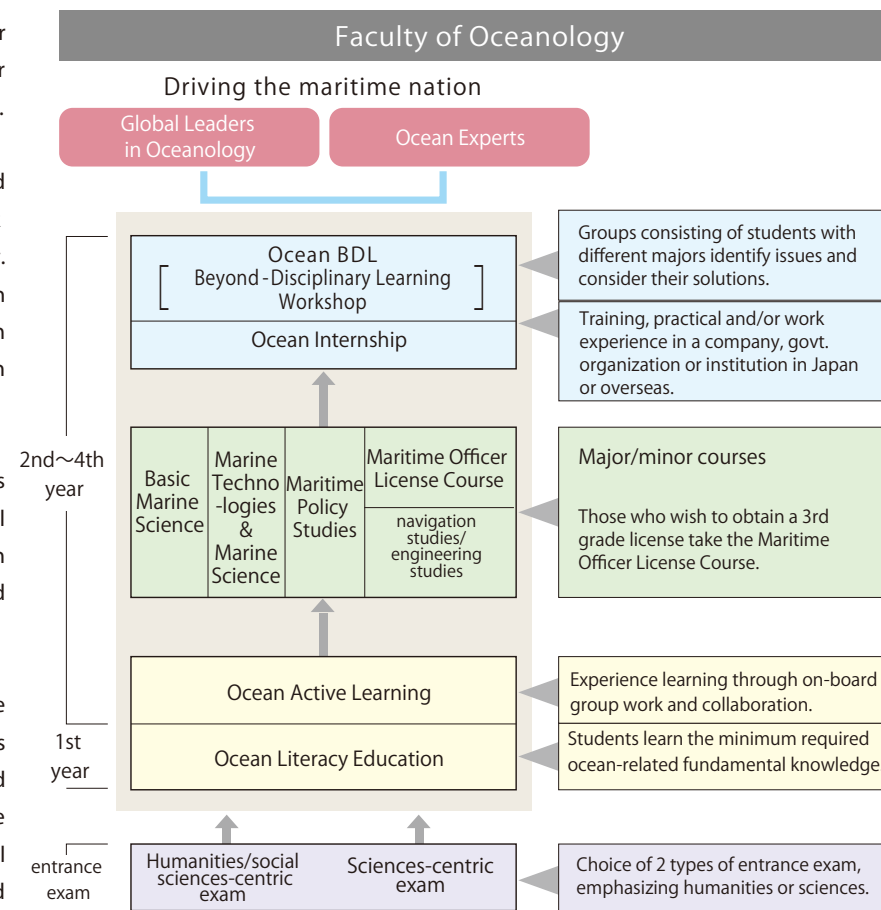
What activities will Fukae-maru be used for?

Up until now, the Fukae-maru has been the Graduate School of Maritime Sciences' affiliated training vessel. However we are planning to affiliate the vessel with the entire university and its stable and efficient operation will be managed by the Center for Maritime Education and Research.

The Fukae-maru will not only be used for students' practical work as part of the new faculty's Maritime Officer License Course, but will also be utilized by KOBE to advance inter-institutional collaborations on pioneering ocean research.

What will the new ship be like?

Fukae-maru was built 32 years ago and consequently its performance and function have deteriorated noticeably, therefore it is necessary to construct a new ship. The new ship will boost high safety levels and will be appropriate for long voyages with its improved living quarters.



Furthermore, it will be a high performance training ship newly equipped with various investigative apparatus, which will outperform Fukae-maru.

As a vessel belonging to a national university, Fukae-maru can be adapted to meet a variety of public needs. For example, it is hoped that it could contribute to relief efforts in the event of a disaster. The new ship's construction is being expedited so that we will soon be able to conduct operations with a next generation high performance training vessel.

Could you tell us about the third pillar: the new research organization?

In October 2019, Kobe University established the Institute for Advanced Research, which is directly administered by the university president. The Research Alliance for Human and Ocean Coevolution (RAHOC) is part of this. Under the guiding principle of ocean and human coexistence, this research organization's mission is to advance cutting-edge research while raising our international presence through policy proposals.

RAHOC is not a vertical organization, rather it is a horizontal organization that promotes collaborative research involving a wide range of members from industry, government and academic backgrounds. Japan experiences earthquakes and volcanic eruptions, so I would also like the research organization to function as a think-and-do tank for reconstructing Japanese people's perspectives on disaster.

We will begin our activities with an inaugural symposium. The organization's distinguishing feature is that it provides a platform for faculty and researchers from humanities and sciences fields to exchange opinions. I would like to regularly hold such study meetings to develop an inclusive approach towards identifying issues to focus on.



Tezuka Osamu's Triton character chosen as the Kaijin Project's navigator

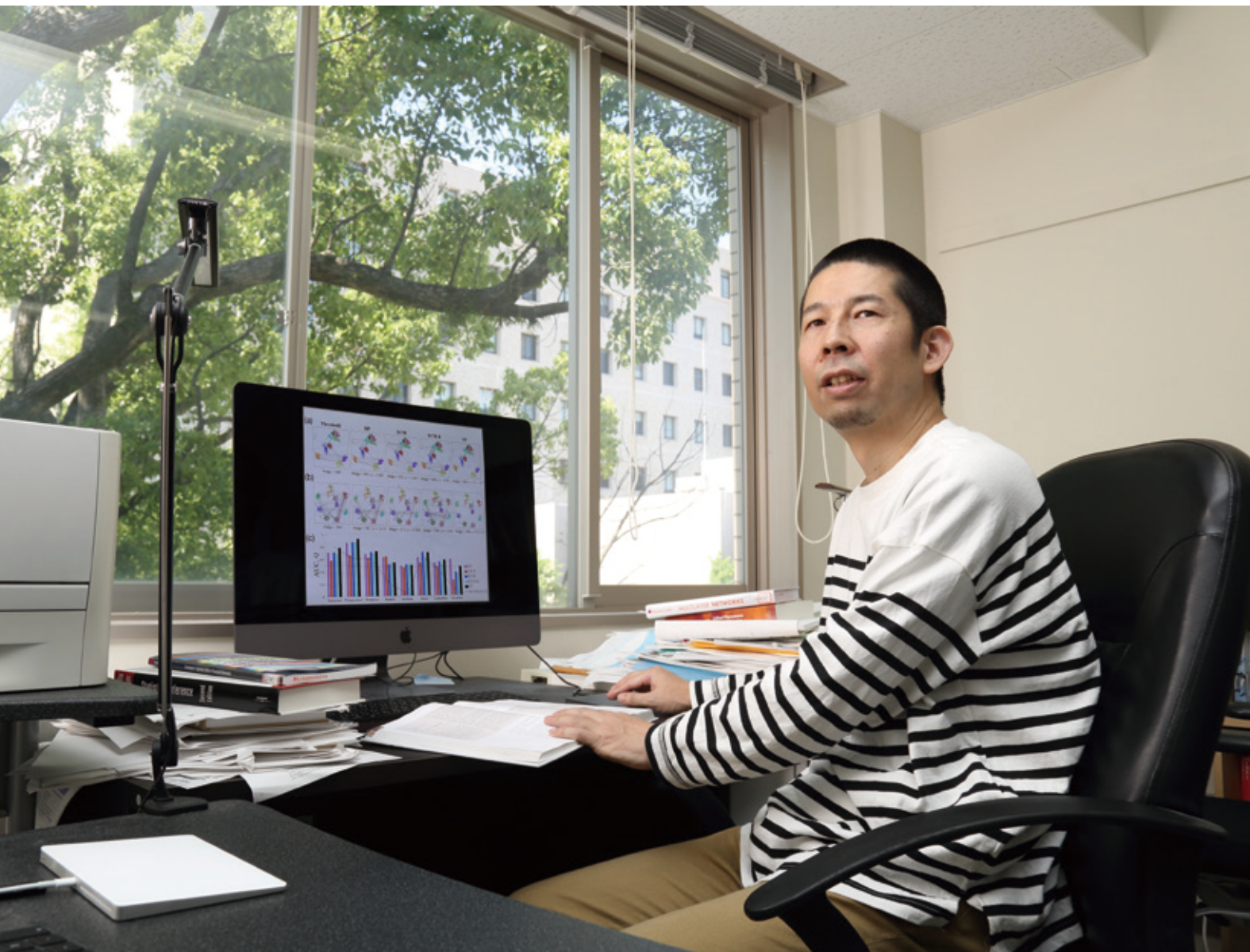
'Triton of the Sea' is a comic book series created by Japan's influential father of manga TEZUKA Osamu. Raised by humans, the main character Triton is the last of the Triton clan. Triton must overcome various trials and battles in the story's ocean setting. The original 1969 manga contains criticisms of humankind's actions and opinions on environmental issues, remaining very relevant today.

Triton has been chosen as the promotional navigator for Kobe University's aim of becoming a comprehensive university which is 'open to the sea and opens up the sea'. Like Triton, Kobe University will advance while overcoming various issues facing society.



Making Social Trends visible with Network Science:

Developing New Analytical Methods for Networks Changing over Time



Professor Kobayashi, an associate professor at the Graduate School of Economics, is engaged in research on identifying intimate personal relationships from contact data, or in simpler terms, extracting who is friends with whom and how close they are from the network of human contacts.

In addition to the analysis of monetary policy using mathematical macroeconomic models, Professor Kobayashi intensively studies network science. Network science is a field of study which grasps the relational structures behind real-world phenomena in order to understand the underlying mechanisms. His recent research on identifying close relationships based on human contact data has drawn attention due to its development of a method enabling a new approach to the analysis of dynamic networks. We spoke with Professor Kobayashi about the connection between the research on identifying human proximity and the analysis of financial markets.

Networks as a means of understanding the world

What is network science?

Professor Kobayashi: Have you ever heard the expression “six degrees of separation?” It’s a famous theory stating that everyone in the world is connected by no more than six links of acquaintance, in the sense of knowing someone who knows someone and so on. It may seem impossible at first glance, but it is actually possible. Isn’t that mysterious? If you think of these connections among people as a network of points (nodes) connected by lines (links), it can be explained with an extremely simple model. A paper on this was published in 1998, raising awareness of the importance of networks as a way of understanding the world around us.

At around the same time, the World Wide Web became visible as a whole by expressing websites as nodes and their URLs as links. The distribution of the number of links (degrees) attached to each individual website showed a clear statistical distribution. Everyone was creating links without considering the overall network structure, and yet when viewed overall there’s this clear distribution, and it was the same as the power law distribution often seen in statistical physics. The network of airlines shows the same characteristics, and phenomena that entail the same distribution are common in economics as well.

In short, it was once thought that social, economic and natural systems work through different mechanisms, but we’ve learned that on the macro level they have many characteristics in common. Network science has developed from there, bringing in researchers from various fields.

How did you first encounter network science?

About ten years ago, I was doing research on monetary policy, in particular theoretical models in macroeconomics. However, when conventional models failed to explain the global chain-reaction of financial disruptions resulting from the Lehman crash in 2008, I focused on network science as an alternate approach. In network science, we consider things as a network and mathematically model

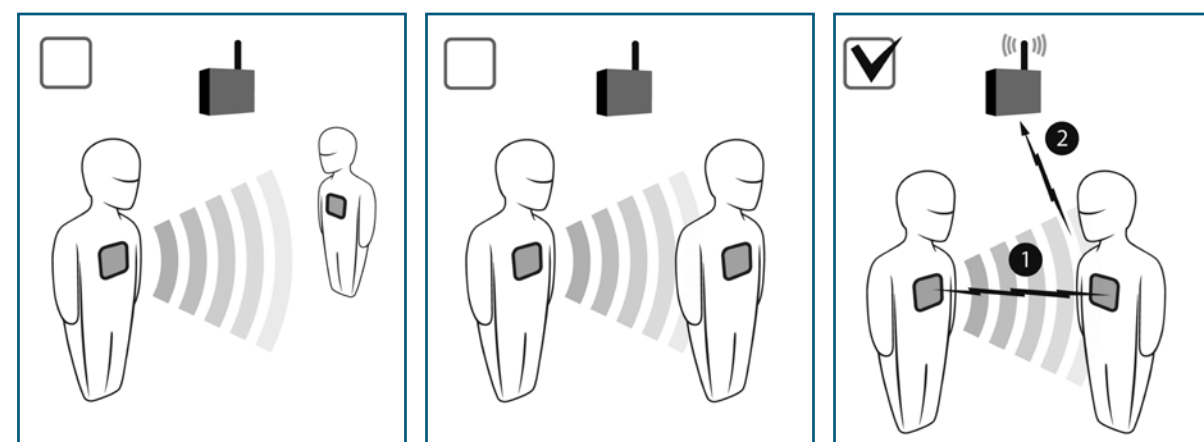
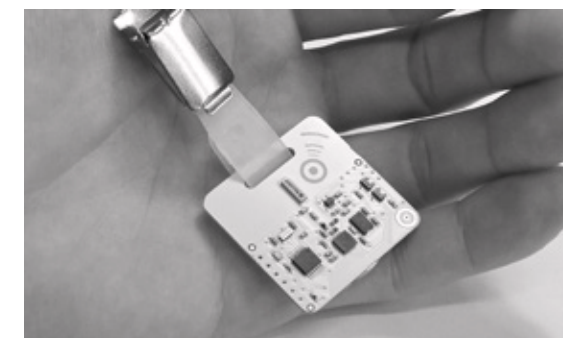
the mechanisms of the phenomena occurring on the network. Consequently, I began to think that treating financial markets as networks could enable detailed analysis of the contagious effects of the Lehman crash.

In a financial market, nodes are banks, and money lending and borrowing take place among banks on a daily basis. The lenders are connected to the borrowers by links, forming networks every day. Analysis of these interbank networks gradually revealed their commonalities with the communication networks among people. Comparing the behavior of groups of people, namely banks, with individual behavioral patterns gave us many similarities between them. To study human contact networks, we can have people put on wearable sensors and create a contact log (see figure below).

New methods of analyzing dynamic networks

How do you compare them?

Conversation requires decision-making as in “who to talk with,” “how long to talk for,” and “when to speak to the next person.” If there are many conversational pairs, the distributions of the duration of each conversation and the time interval between adjacent conversation events can be obtained. We found that the duration of “how long to talk for” has exactly the same pattern as that of how many days banks continue transactions with the same partner. In addition, the



Top right: A wearable sensor (© Socio Patterns)

Right: Image of a contact data log. Cases when two people are far apart (figure on left) or not facing one another (figure in center) are not recorded; the device logs only the instances when they are facing each other within a distance of 1 meter or so (figure on right).

Clarifying the Dynamical Properties of Networks

interval distribution of “when to speak to the next person” is the same as the distribution of the time between two adjacent trades. That is, we learned for the first time that both individual conversations and bank transactions possess exactly the same pattern in decision-making.

While individual conversations have various motivations, the purpose of bank transactions is simply the pursuit of profit. How do they end up tracing similar patterns while aiming at different targets?

That’s the mysterious part. The Italian bank market data I analyzed included 300 different banks, but in many cases, they continued trading with the same bank continuously for 100 days or more. If they were choosing trading partners at random, it’s out of the question that transactions with 1 out of 300 possible partners would go on for 100 days. That means that the bank sees value of some kind in a continuing relationship with that partner. To understand this, decision-making in personal relations serves as a hint.

So, to study human social networks, I began modeling the conversation networks of students at a primary school in France. Based on the model, we developed a method to identify the strength of proximity between students. The important point here was to take into account the differences in potential activity levels between individuals.

Potential activity levels?

First, there’s the issue of how to scientifically define “proximity,” as in “friends” in the case of interpersonal relations and “favored clients” in inter-company relations. Conventionally, it was thought that a higher number of contacts meant being friends and a higher number of transactions or higher monetary amounts meant being favored clients, but there are problems with these simple assumptions. I mean, with larger corporations, naturally there are more transactions and larger amounts of money changing hands. Say a small company has a

relationship where they trade 100 times at ten thousand yen apiece, while a larger one trades 100 times at one million yen apiece; the amounts may be smaller, but the former might actually have a stronger relationship. That’s why, when determining friends or favored clients, you have to take into account the potential activity level of each individual or corporation. Large corporations naturally have high potential activity levels, so you have to discount that.

Regarding the face-to-face networks at a primary school, a highly social child may talk with 50 other people in a day, while a very taciturn child might talk for three minutes a day with one particular student, enabling us to see a special relationship there. By controlling the actual activity level of each individual, we can detect relationships that are not dependent on absolute conversation time (see figure on page 10).

Your research has been very well received, hasn’t it?

Research up until now has extracted the important links in various networks, but has always focused on static networks at a given point in time. The novelty of our research is our development of a method for extracting (filtering) friendly relationships in networks that change over time, and I think the response to that has been positive. Clarifying dynamic characteristics is a major challenge in network science.

Is it applicable to other fields as well?

It can be applied as long as you have data on dynamically changing networks. For example, there are potential applications with regard to objectively grasping friend networks within schools, detecting bullying as it happens or observing the signs of bullying before they develop. It should also be applicable to monitoring trading relations in financial markets or managing livestock.

Interviewee Profile

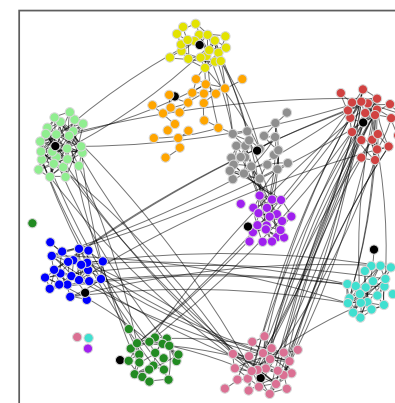
KOBAYASHI Teruyoshi
(Associate Professor, Graduate School of Economics)

KOBAYASHI Teruyoshi graduated from Nagoya University School of Economics in 1999, and received his Ph.D. from Nagoya University’s Graduate School of Economics in 2004. He took up his present position after serving as a tenured lecturer and associate professor at Chukyo University School of Economics. A specialist in macroeconomics and network science, Professor Kobayashi’s main research fields include studies on optimal monetary policy using macroeconomic models, as well as the application of network science models and analytical methods to the study of economic phenomena. In 2020 he received the Murao Educational Foundation Academic Award, which recognizes outstanding academic research accomplished by a researcher located in Hyogo.

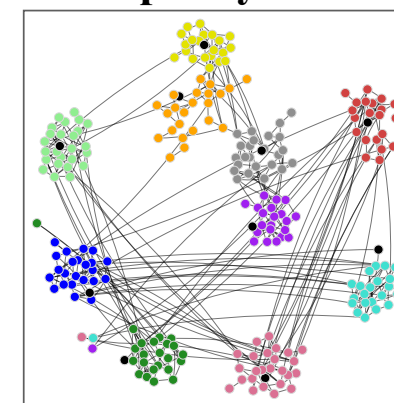


Objectively identifying stable dyadic (two-person) relationships within dynamic networks

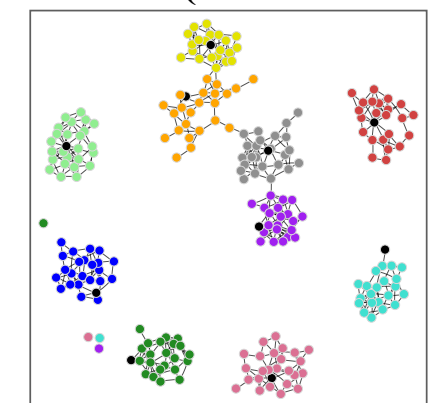
Threshold method



Disparity filter



ST filter (new method)



Professor Kobayashi’s research group estimated the potential activity levels of each individual and calculated the number of contacts when they would select partners at random. They then compared the number with the actual number of contacts for each pair and judged that, if the number was high enough to have been impossible via random selection, the relationship was significant.

The figure above shows the results of applying this filtering method to the conversation network in a primary school in France. Each point represents a student, color-coded by class (the black points are teachers), with black lines showing significant ties. With the conventional threshold method (figure on left), judging simply by the number of contacts, it would appear that there are multiple intimate pairs outside each class as well; however, according to the proposed filtering method (figure on right), which takes the potential activity levels of each pair into consideration, most significant ties were found within the same class. It was thus shown that friendly relationships appeared within each class.

Potential to avoid lockdowns in the age of the coronavirus

What are the possible network science approaches to the post-coronavirus world economy?

In fact, a lot of network scientists are currently working on simulations predicting the spread of the novel coronavirus. They are using mathematical models to predict how people are connected and how they behave in order to make judgments on “how much restrictions on activity would prevent how much infection from spreading.”

However, while network science at present may be able to predict through mathematical models how far infection will spread based on the observation of people’s behavior, we don’t know how people’s behavior will change in the event of a shock. For instance, in response to the shock of the coronavirus outbreak, people spontaneously stay at home, refraining from going out. As a result, the shape of the network of human connections changes significantly, but we don’t know how it changes spontaneously, that is, how much reaction there is to shocks. If we could predict or counter infection through an understanding of the mechanism of these possible changes in human behavior, we would be able to judge more precisely the government’s need to impose a lockdown.

Even while the coronavirus is spreading, are there situations in which a state of emergency would be uncalled for?

I think it would be possible. During Japan’s state of emergency in April and May, the government called on people to reduce their contact with others by 80%, but if the data shows us that people will spontaneously restrict their activity to this extent, there should be no reason to make the request, making it possible to avoid bringing economic activity to a halt all at once.

Will you be researching this issue from here on?

I would like to, but the ethical issues make experimentation difficult. It is out of question to introduce an infected person into a group of people and see how everyone reacts. Some researchers have done this kind of experiment with ants, which are social insects, and there are some possibilities in this direction, but we really do need an understanding on the social level of human beings. Experimentation is extremely difficult, but I hope to work out some way to proceed with the research.

Kobe University's V. School

Aiming to be a Global Hub for Value Creation

Established in April 2020, Kobe University's 'Value School' (V. School) aims to cultivate talents who can create value by discovering, realizing and elaborating upon underlying 'hopes and expectations' beyond existing seeds/needs. It is not an independent body or department, rather it is a university-wide cross-departmental organization that students can freely join. V. School exists beyond the boundaries of faculties and graduate schools, reflecting and making the most of Kobe University's tradition of integrating the arts and sciences.

We asked Professor KOKUBU Katsuhiko, V. School's director and university vice president, about its aims and distinguishing characteristics.

What led to the establishment of V. School?

Professor Kokubu: In order to revitalize society, the pressing need for talents who can create new values and trigger innovation is widely recognized. However, it has been said that universities are not meeting this expectation. One reason for this is that higher education has become increasingly focussed on specialization.

V. School was established with the aim of stimulating knowledge creation by demolishing the boundaries between the different faculties and graduate schools and intersecting various academic fields from a value creation perspective.

What are V. School's distinguishing characteristics?

With its catchphrase 'Wonderland for Thoughts and Creation', V. School is designed to allow both faculty and students to freely devise and carry out various education and research projects. The credit system is not applied to the classes so students are free to design things without being restricted by academic constraints. All students join V. School of their own free will and most of the faculty members are also taking part voluntarily.

We are also planning to set up various value creation projects in cooperation with industry and government bodies in order to create social value. Through these kinds of activities, we hope that our students will acquire the ability to create value as fundamental knowledge that supports their high level specialization.

What kind of classes does V. School offer? What is value creation?

At V. School, we organize educational programs on value creation using the following formula: "Value Creation = Value Emergence × Value Design" (This is represented as a loop diagram consisting of 6 elements).

'Value Emergence' is the discovery of value that was not thought of at the outset and 'Value Design' is the thought process up until the realization of such a value in society. 'Value Design' is the process of figuring out how to implement such values in society.

V. School educational programs are mainly composed of the 'Value Creation Salon' (a talk between three faculty members), lecture courses on 'Value Creation and Emergence' and 'Value Creation and Design', and Problem Based Learning (PBL, which is related to Value Emergence



Professor KOKUBU Katsuhiko
(University Vice President and Director of V. School)

and Value Design). In addition there are related courses taught by faculty and lecturers from both inside and outside Kobe University.

V. School is split into two divisions; the Value Emergence Group and the Value Design Group. The respective heads of these divisions are Professor TAMAKI Hisashi of the Graduate School of System Informatics and Professor KUTSUNA Kenji of the Graduate School of Business Administration/Graduate School of Science, Technology and Innovation.

How have students responded to V. School?

At the moment (as of June 1, 2020), there are a total of 59 matriculating students in V. School; 46 undergraduates and 13 graduate students. They come from 9 faculties and 7 graduate schools. This is nearly double the amount of students that we originally predicted, indicating that V. School's efforts are well suited to the needs of students.

We have created a discussion platform for students using the team communication tool 'Slack', which enables them to continuously discuss value creation even before and after the lectures. On Slack, there have been some heated discussions between faculty members, and with the participation of students, we have been able to achieve an even higher level of discussion. As V. School does not adopt the credit system, students are completely free to learn what they want and plan their own projects. In this sense, I think it could be said that we are returning to the origins of education.

"With its catchphrase 'Wonderland for Thoughts and Creation', V. School is designed to allow both faculty and students to freely devise and carry out various education and research projects."

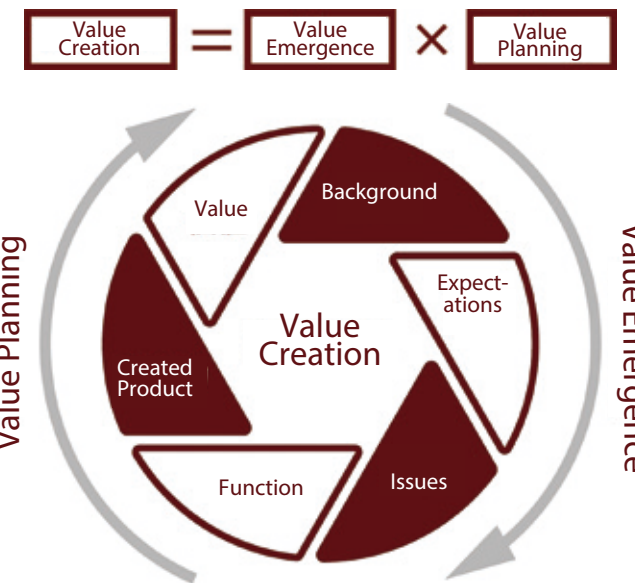
What kind of students would you like to come to V. School?

I would like students who are not satisfied with the existing framework to come to V. School. Recently, there are many students who feel pressure to conform, which is useless for value creation. Rather, I would like students who have the ambition to try coming up with ideas that up until now no one has thought of, and to make these ideas into reality. I think that it will bring great value to society if this kind of ambition can be realized even slightly through V. School's PBL and projects. It is even more necessary right now with the corona crisis for these ideas to break the status quo. V. School has also opened its doors to industry in the form of an institution membership system, and we would like to see these practitioners become actively involved.

Tell us about V. School's future plans.

We would like to strengthen our presence in society and the world. I think that society has great expectations for V. School and we would like to live up to these expectations through our projects.

We would also like to collaborate with the Creating Value Alliance, which carries out operations on a worldwide scale, and grow Kobe University into a global hub for value creation. In addition, with a generous donation from Mr. MIYAKE Suguru (president of the Nihon M&A Center) we are planning to construct a new building by 2022, which will be the 120th anniversary of Kobe University. We look forward to the active participation of all of our faculty, staff and students.



Interviews with students at V. School

KUBO Yuichiro

1st year doctoral student studying at the Graduate School of Business Administration



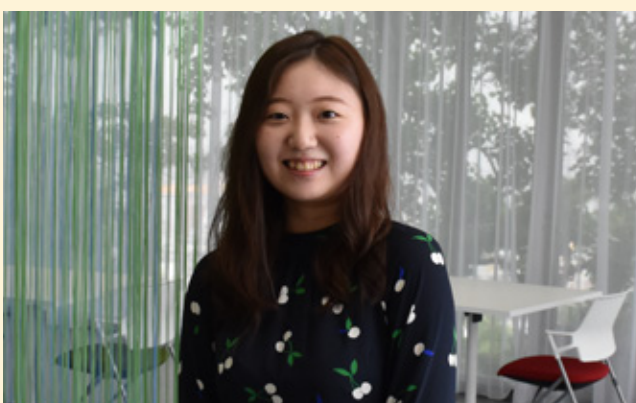
I was studying the socioeconomic effect of sports as a tool for regional revitalization, focussing on the 2020 Tokyo Olympics. For a year and a half, I planned and finished editing a handbook containing practical information on the physical support for overseas athletes at training camps, the industries of the host cities and the characteristics of the Tokyo Olympics. However, I am currently unable to move on to the next stage of the project because the Olympics have been postponed due to the spread of the novel coronavirus. I experienced failure at the start despite having fully made plans and preparations. I heard about V. School when I was trying to find a way to put my project into practice.

V. School's goal is 'Value Creation'; this begins with 'Value Emergence'- an exchange platform where students can plan and design. I was able to learn many things from the rich knowledge of the professors who are specialists in their respective fields. For 'Value Design', which covers societal realization, students can take a systematic program that aims to cultivate human resources (entrepreneurs) who can realize Value Creation.

When I reviewed my research through the perspective of 'Value Creation', I realized that examinations and analyses were insufficient to quickly and flexibly respond to the current changing society, and that it is necessary to approach it from the viewpoint of searching for new needs and adapting to various situations by anticipating their developments.

SUGIURA Ami

3rd year student on the Mechatronics course of the Maritime Engineering Department, Faculty of Maritime Sciences



I think that the key to success at V. School is 'how much can we (students) take away the different professors' ways of thinking and make them our own?' In regular university classes, students can actively take part but have few opportunities to see how professors discuss a specific topic. V. School provides a platform for realizing both aspects.

As well as acquiring knowledge of a specialized field in regular classes, I think that it is also necessary to understand it from seemingly unrelated points of view. This was one of my motivations for joining V. School.

It was as if they had read my mind because at V. School;

professors from various specialized fields explained topics from the perspective of their specific academic areas, which also requires me to think from a variety of perspectives. Therefore, it is impossible to truly understand a lecture unless I put my brain into full gear both during the lecture and afterwards.

'Questioning is the piety of thought.' V. School's Director, Professor Kokubu introduced us to this quote from Heidegger during a lecture. Professor Kokubu then added his own observation; 'Why is questioning the piety of thought? Because by questioning, we can open the door to a new world.' Questioning is the action of reiterating rigorous thoughts. So what produces these rigorous thoughts? That would be another thought.

I would like to enhance the value of V. School by becoming a person who can contribute to resolving problems with a multifaceted understanding, informed by different professors' ways of thinking.

Kobe from an architectural point of view

The joys of learning 'on location'

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

After graduating high school, I entered Shanghai International Studies University and studied Japanese for a year. Then I came to Japan and visited many places around the country while studying at a Japanese language school for 6 months. I like the atmosphere of the Kansai region of Japan and old buildings so I went to Osaka, Kyoto, Nara, and of course, Kobe. I also visited Tokyo once. During my trip to Kobe, I thought that the streets were very beautiful and I started to like this city. I also visited Kobe's Chinatown, however it is a bit different from China.

Q *What kind of research are you currently doing?*

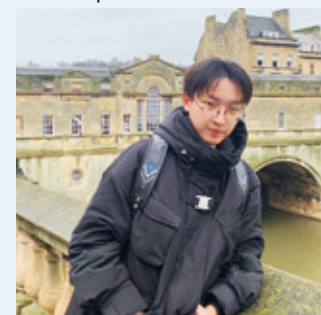
I haven't started my graduate research yet. I am working on the planning assignments that are given to 4th year students. The current assignment is on improving the streets in the Sannomiya area. This involves identifying aspects that are not good or have become problems, and then coming up with ideas for improvement from an architectural perspective. For example, I think that Kobe is popular as a tourist destination for Japanese people. However, in reality, Kobe is not as popular as Osaka and Kyoto from the viewpoint of travelers from overseas, such as those from China and South Korea. With this in mind, I am conducting research to consider how Kobe's townscape can be improved to attract foreign tourists.

Q *Are there any areas of Kobe that you are personally interested in?*

I like Harborland, Motomachi, and Kitano Ijinkan (historical foreign settlement quarter). From an architectural point of view, the townscape in those areas is considerably beautiful. Personally, I like the sea so I love to walk along Harborland's promenade and feel the sea breeze. Recently, I haven't been due to the impact of the coronavirus but before I used to go for a walk there with friends about once a week and also go to cafes in the area.

Q *What are your future goals?*

I would like to study abroad in either Europe or America after I graduate from Kobe University. Japanese style and European style architecture are totally different, so in order to learn about both styles, I would like to study at a graduate school in the West. I am currently working on my portfolio for applying to graduate school. I find architecture fascinating as it enables me to exercise my imagination by making blueprints and models for buildings with my own hands. I am aiming to study in different countries so that I can study the unique architecture of each place in even more depth.



On a trip to Bath in England.



An architectural model by Xue Jiajie.

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.

International voices



Xue Jiajie

4th year student, studying Architecture at the Faculty of Engineering

From Jiangsu Province, China. In high school, he was on the basketball team and took part in the school's games. He is interested in the film and music and plays bass guitar. Although busy with classes and assignments, he is leading a fulfilling life.



People's Republic of China

Jiangsu Province borders eastern China's Yellow Sea, and its prefectural capital is Nanjing. Xue Jiajie is from Wuxi, which is a friendship city of Akashi in Hyogo Prefecture. Japanese enka singer Ogata Daisaku's 1986 song 'Mushaku Ryojo' (Wuxi Travels) was a big hit and in the late 80s the number of Japanese tourists visiting the area increased.



His hometown (Photo of Nanchang Street in Wuxi)

Always aiming higher: Building a Formula-style racing car from scratch



FORTEK is Kobe University's Formula team. Every September they take part in the Student Formula SAE (Society of Automobile Engineers) competition of Japan. In 2019, they came 5th place nationwide and won a special prize.

The process of designing a small Formula-style racing car from scratch that will actually work requires repeated trial and error. We asked team leader KUROTANI Kazuma for his thoughts on designing and building cars.

What is Student Formula?

Students design and develop a compact racing car which is entered into a competition held every September. The point of the competition is for students to organize their own team and spend one year making a formula-style racing car. Through the design and development process, students can experience the joys, difficulties and excitement of creating something.

What kind of contest takes place at the Student Formula SAE competition?

At the competition, the cars are judged through two types of event, Dynamic Events and Static Events. In Dynamic Events, the car's performance is assessed in four categories; Acceleration, Skidpad, Autocross, and Endurance. This involves actually driving the vehicle and the time, durability performance and fuel consumption are then evaluated. We drive the car down a straight course and also take figure-of-eight turns, just like on TV.

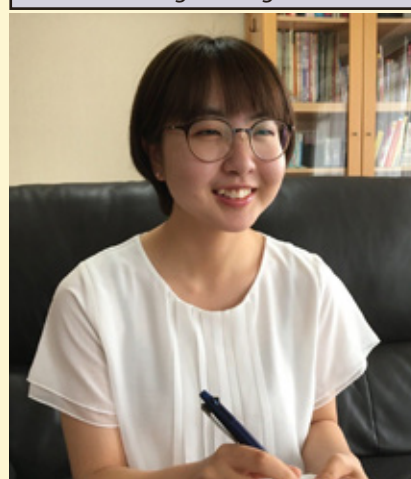
The three competition categories for the Static Events are Cost, Presentation and Design. The cost for creating the machine, our market sales pitch and the design of the vehicle are all evaluated. The points obtained in each of these 7 categories are calculated into the total competition score.

What kind of activities does the team usually do?

Our team's activities are divided into three stages; machine design, construction and driving. After the competition has finished, we work on the design of the next vehicle from September until the end of the year. Then we move onto construction and finally test driving. For the planning, we initially discuss and decide what kind of machine we will make. Next, we build the car that we designed in a workspace that has the required equipment. We then test the vehicle in an open space and practice driving it before the competition. This entire process takes about one year.



FORTEK's KUROTANI Kazuma,
3rd year student studying Mechanical
Engineering at the Faculty of
Engineering.



Interviewer OHGAKI Moe
of the Student PR Team
(1st year studying Humanities at
the Faculty of Letters).

Have you experienced any difficulties making a car from scratch?

Yes, many. The most difficult experience of all was when the simulation did not work. We conduct simulations to make sure that parts won't break or deform too much when we run the machine in real life. However, a part that we hadn't foreseen breaking broke while we were repeating the simulation. Even though we could find the cause of this failure at the initial stage, other issues began to appear and even after looking into all these problems, it still failed. It is exhausting to keep looking when the cause of the problem is unclear.

In the midst of all these difficulties, what makes you feel that it is worth doing?

I get the biggest sense of fulfilment when we drive a machine that we built from scratch. We design the car, run simulations hundreds of times and experience many failures, which can be disheartening. Although this is disheartening, I feel true satisfaction and joy when we complete the car and successfully drive it.

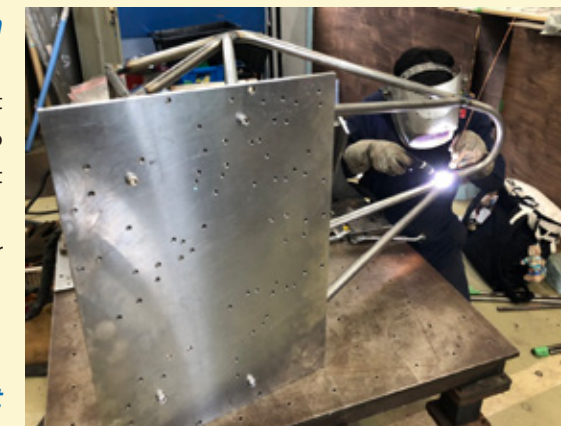
What is your message for those who aspire to make something?

University is the most freedom I have had so far, and students can freely take part in activities in their extracurricular club. With regard to making things, although I had only made pre-prepared things up until high school, at university I got the opportunity to create something from scratch. Of course, this includes the activities of the Formula Team.

I think that only university students have the chance to make something from scratch this freely. If you start working for a company, you can only make things in a restricted way because you are bound by their policies and various other aspects. Therefore, I think that university provides a valuable space where you can spend a meaningful time immersing yourself in freely creating something with your friends. I would like those who are interested in making something and who want to feel a sense of fulfilment from doing that to join our team.

What are your future aims?

I would like for us to become number one in Japan. When I talked to my teammates during the period when we couldn't do practical work due to corona-related extracurricular activity restrictions, they said that they definitely wanted to take 1st place in the competition. Before that, we had been working hard to achieve above 6th place and last year we came in 5th place. 1st place is now within our sights, so our aim is to achieve it.





President Takeda (left) and Executive Vice President Sugimura.

On Thursday July 2nd, the 'Kobe University 'With COVID-19' symposium: Considering how society can coexist with novel coronavirus' was held online. The event consisted of three lectures and a panel discussion and over 260 people joined the event via Zoom.

The opening speech was given by President TAKEDA Hiroshi, in which he wished those who have contracted novel coronavirus well and expressed his gratitude towards all those working in hospitals. He also stated that this symposium was held as part of the University's aim to keep pace with and contribute to society.

The lectures began with Executive Vice President SUGIMURA Kazuro (in Charge of Hospital, Student Affairs and Risk Management) explaining aspects of the novel coronavirus, including the prevalence of infection, symptoms, diagnosis, treatment and antibody testing. Next, Associate Professor HATTORI Yasuhiro of the Graduate School of Business Administration talked about the impact of the virus on both industrial

and individual levels by presenting a results analysis based on questionnaire answers from businesses and individuals. Lastly, Executive Vice President OGAWA Matsuto (in Charge of Research, Environment and Information Management) spoke about how we can build a society where people can co-exist with the novel coronavirus and introduced the fifty or so research themes that the university is tackling based on this topic.

The panel discussion was moderated by Vice President SAITO Masahiko (in Charge of Mathematical and Data Sciences and Research Promotion). The ensuing discussion focused on how society can co-exist with the virus from multiple angles, including medical, economical, technological, cultural and administrative aspects. Director TANIGUCHI Masumi, of Kobe City's Planning and Coordination Bureau spoke about Kobe City's current circumstances in relation to the city's strategic measures against the virus. He also introduced city planning visions for the future, and the most important aims and crucial ideas regarding the virus. Dean OKUMURA Hiroshi (Graduate School of Humanities) presented historical and cultural factors as to why the virus hasn't spread as widely in Japan. Panelists brought up issues such as the need for people to stay connected both online and offline.

The event finished with a closing address from Executive Vice President MIZUTANI Fumitoshi (in Charge of Planning and General Affairs), in which he thanked those who joined the symposium. He also expressed his aspirations for Kobe University to continue to accumulate multifaceted knowledge and contribute towards shaping the next era. With these closing words, the symposium was brought to a successful conclusion.

Kobe University receives 10m. yen research grant from Sumitomo Mitsui Trust Bank to develop coronavirus vaccine

Sumitomo Mitsui Trust Bank Ltd. has presented Kobe University with a 10 million yen grant to support research into a vaccine for the novel coronavirus. This donation comes from the financial institution's 'Account for Donations to Develop Vaccine and Medicine to Treat COVID-19', which aims to support universities that are developing a vaccine or treatments to tackle the virus. In Kobe University's case, this funding will support the vaccine development research conducted by Professor MORI Yasuko et al. at the Graduate School of Medicine's Center for Infectious Diseases.

The presentation of the donation took place on July 8 on the University's Rokko-dai campus. From Sumitomo Mitsui Trust Bank Ltd., Senior Managing Executive Officer TANAKA Naohiro and TAKAHASHI Hideya, the Head of General Affairs at the Osaka main branch, were present. In attendance from Kobe University were President TAKEDA Hiroshi, Executive Vice President ODA Keiji, the Graduate School of Medicine's Dean FUJISAWA Masato and Professor MORI Yasuko (of the Center for Infectious Diseases).

Mr. Tanaka presented President Takeda with a representation of the



10m. yen donation. In return, President Takeda presented the bank representatives with a letter of appreciation and expressed his heartfelt gratitude for the grant. Afterwards, Professor Mori gave an outline of the research into developing a novel coronavirus vaccine.

Kobe University is aiming to develop an immunization vaccine for novel coronavirus from existing chicken pox and shingles vaccines, and is conducting joint research with The Research Foundation for Microbial Diseases of Osaka University. Professor Mori commented, 'We are aiming to develop a vaccine for novel coronavirus. To achieve this, I would like to use the grant to set up a P3 laboratory for handling the novel coronavirus and conducting virological analyses.'



Chinese students and graduates donate masks to Kobe University



On April 21, Kobe University received a donation of 25,000 masks from Chinese exchange students and alumni. Upon hearing about Japan's State of Emergency that was declared as a response to the widening spread of novel coronavirus, former student and Shanghai resident Ms. SONG Xiaohua (2002 alumni of the Graduate School of

Science and Technology) appealed to other alumni for donations of masks for Kobe University. They managed to raise a total of 25,000 masks.

Juneyao Airlines Co., Ltd employee Ms. ZHOU Li (2015 alumni of the Graduate School of Law) arranged the transportation with the airline's cooperation; the donated masks arriving at Kansai International Airport on the same day. The president of the West Japan branch of Kobe University's International Alumni Association, Mr. CHEN Lin (2005 alumni of the Graduate School of Natural Sciences), drove the masks from the airport to Kobe University's Centre for International Education. Executive Vice President YOSHII Masahiko (in Charge of International Exchange and Evaluation), Director KAWAI Naruo and Professor PARK Jong Woo (both of the Center for International Education) received the masks on behalf of the university's staff.

The donated masks have been used resourcefully by university staff, beginning with those working at the University Hospital and the Department of Medicine. On behalf of all staff of Kobe University, we would like to express our heartfelt gratitude for this warm support when masks were in such short supply.

International Academic Exchange Meeting held with Tianjin Medical University

An international academic exchange meeting was held online between Kobe University's Graduate School of Medicine/School of Medicine and Tianjin Medical University on August 7.

Kobe and Tianjin established the first friendship city relationship between Japan and China in 1973. Their cooperation has grown since then; for example the 45th anniversary in 2018 was marked by events such as an international medical exchange symposium held in Tianjin. Furthering this history between the two cities, Tianjin Medical University and Kobe University Graduate School of Medicine/School of Medicine entered into an academic exchange agreement in May 2019 with the aim of promoting exchange across medical fields.

The international academic exchange meeting was held with the participation of 9 faculty members from various medical departments of Kobe University, and 17 faculty members from various medical departments of Tianjin Medical University.

On the day, Kobe City's Director in charge of Medical Policy HANATANI Tadaaki gave a special lecture introducing KOBE Biomedical Innovation Cluster (KBIC) and its aims to contribute internationally by providing new medical services and advanced medical technology beginning with other Asian countries. After the lecture, Kobe University and Tianjin Medical University exchanged information on three medical fields; gastrointestinal medicine, breast surgery and urology, resulting in a lively discussion. In recent years there has been considerable ongoing progress in China's medical fields and many impressive aspects regarding the scale of this progress. Participants from Kobe University were greatly inspired by this and have big aspirations for future exchange.

Kobe University is currently collaborating with Kobe City on the 'Kobe Vision for the Healthcare of Tomorrow', a publicly funded project to revitalize local industry and universities, which aims to develop KBIC. The University is also conducting advanced research and development in the field of medical devices, focusing on robotics that can assist surgery. China is also aiming to further develop its medical industry and has large-scale advancement plans, such as creating extensive medical industry clusters.

The development of international medicine is currently facing extremely difficult circumstances due to COVID-19, however new methods that have been implemented as a response to this, such as online consultations, have great potential.

Tianjin City/Tianjin Medical University and Kobe City/Kobe University are expected to achieve substantial synergy through working together as they are striving towards the same goals. It is hoped that the spread of COVID-19 will be halted quickly, allowing both cities and both universities to further increase their cooperation.

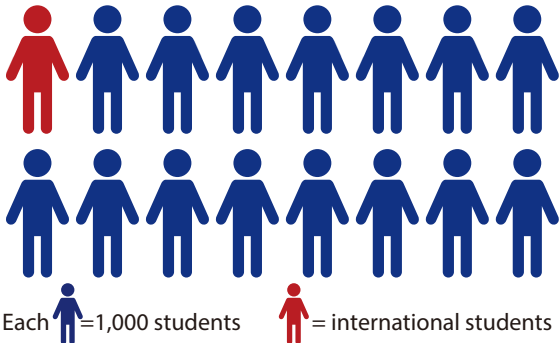




ABOUT KOBE UNIVERSITY

Founded in 1902

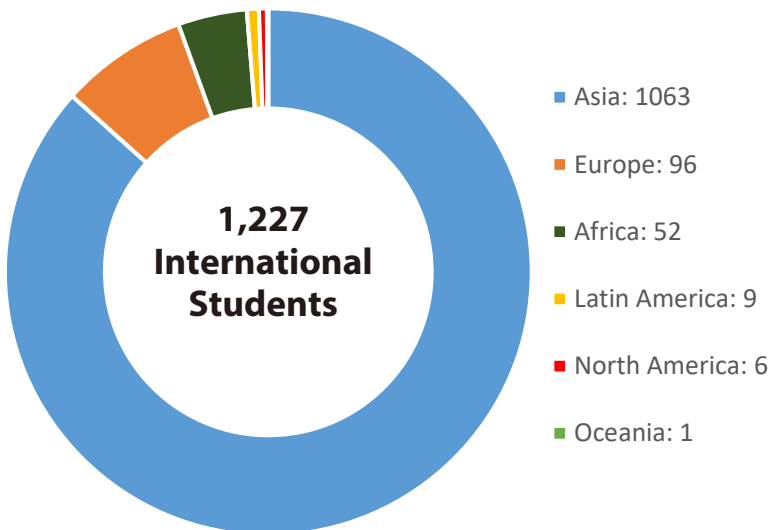
4 campuses | 10 faculties | 15 graduate schools



16,080 students including 1,227 international students

3,734 staff including 1,673 teaching staff
2,061 administrative staff

Regional distribution of international students



Faculties and Graduate Schools

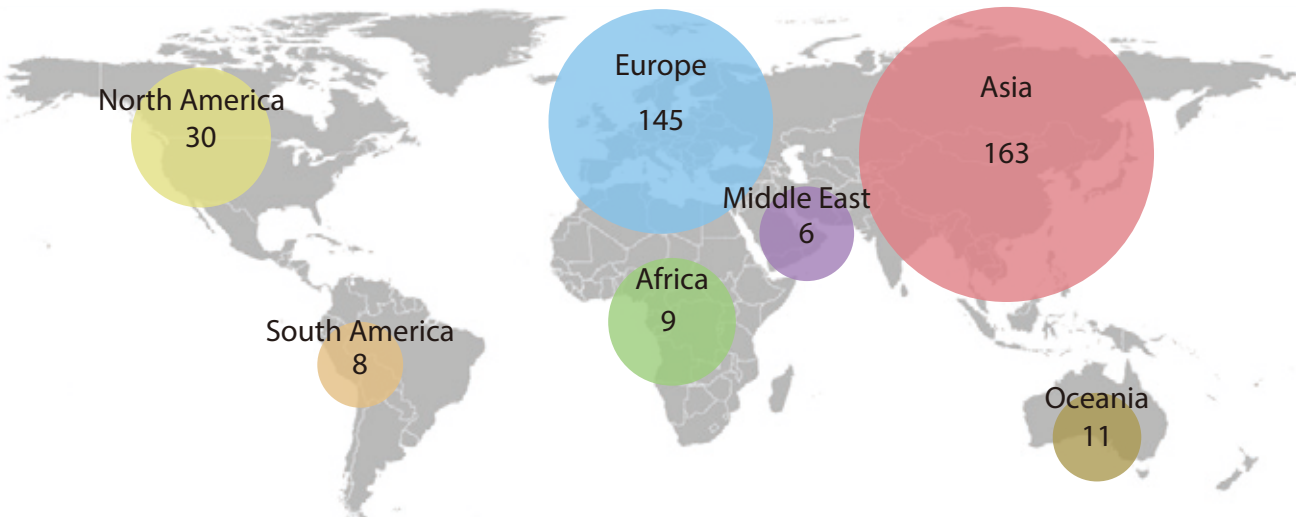
- Letters / Humanities
- Global Human Sciences
- Intercultural Studies
- Human Development and Environment
- Law
- Economics
- Business Administration
- Science
- Medicine
- Health Sciences
- Engineering
- System Informatics
- Agriculture / Agricultural Science
- Maritime Sciences
- International Cooperation Studies
- Science, Technology and Innovation

Alumni networks in 15 countries



Partner Universities

Kobe University currently has 372 partner institutions in 63 countries/regions.



All data as of May 1, 2020