



The 7th Kobe University
Brussels European Centre Symposium

Emerging Sciences and a Changing World: EU-Japan in Transition

Jointly organised with Vrije Universiteit Brussel



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Preface

I am pleased to present this report on the 7th Kobe University Brussels European Centre (KUBEC) Symposium “Emerging Sciences and a Changing World: EU-Japan in Transition” which was held in Brussels on 8 November 2016. KUBEC has been holding an annual symposium in Brussels since its establishment in 2011. Since then, we have been striving to expand our academic network in Europe and to raise the profile of Kobe University and other Japanese universities. In this regard, we place an emphasis on our presence in Europe by holding a number of academic workshops and seminars at KUBEC or at partner institutions as well as the annual symposium in Brussels, which features guest speakers from both European institutions and Japanese universities.

This year marked the first time that the symposium was held in collaboration with Vrije Universiteit Brussel (VUB), where the KUBEC is located. KUBEC relocated to the international office buildings of VUB in July 2015 in order to fulfill its role as a base for international collaboration in education and research between Japan and Europe through strong ties with Belgian universities. This symposium is part of our initiative to strengthen collaboration with Belgian universities and to examine the perspectives of joint research between Japan and Europe.

The theme of the 7th symposium, “Emerging Sciences and a Changing World: EU-Japan in Transition” focused on the shared challenges Japanese and EU societies face as they pursue future development. The latest research results and applications of Data Science, Cultural Diversity, Migration and Security, and Particle Physics were introduced by both Japanese and European researchers in the hope of establishing future collaboration using advanced knowledge or technology for each project. Furthermore, we also discussed perspectives on interdisciplinary research and education in global issues that various countries now face, welcoming prominent researchers from around the world. As a result of this symposium, collaborative projects are under discussion or have already begun. I hope this event will enhance Japanese and European research collaboration for the betterment of our societies.

Hiroshi Takeda

President
Kobe University



The 7th Kobe University Brussels European Centre Symposium “Emerging Sciences and a Changing World: EU-Japan in Transition”

Jointly organised with Vrije Universiteit Brussel

Date and Time: Tuesday 8 November 2016 9:30-18:00

Place: Vrije Universiteit Brussel, U-Residence

Generaal Jacqueslaan 271, 1050 Brussels, Belgium

Opening 9:30-10:00

MC: Prof. Matsuo Ogawa, Executive Vice President, Kobe University

Opening addresses:

- (1) Prof. Hiroshi Takeda, President, Kobe University
- (2) Prof. Caroline Pauwels, Rector, Vrije Universiteit Brussel
- (3) H.E. Mr. Kazuo Kodama, Ambassador of Japan to the European Union
- (4) Mr. Wolfgang Burtscher, Deputy Director-General, Directorate-General for Research and Innovation, European Commission

Session 1 10:00-13:30

Data Science in the Age of Big Data

Session 2 10:00-13:30

European Values – Unity in Diversity

Session 3 14:30-18:00

Migration and Security

Session 4 14:30-18:00

Beyond Standard Model at LHC and Neutrino experiments

Organiser: Kobe University

Co-Organiser: Vrije Universiteit Brussel

Opening Speech



Prof. Hiroshi Takeda

President of Kobe University



Distinguished guests, ladies and gentlemen, I would like to extend my heartfelt welcome to all of you to the 7th Symposium of Kobe University Brussels European Centre (KUBEC), this year jointly organised with Vrije Universiteit Brussel.

It is a great honour to deliver this opening address in the presence of many distinguished guests. Please allow me to begin by expressing my sincere gratitude in particular to our honourable guests, His Excellency Ambassador Kazuo KODAMA, Mission of Japan to the European Union and Mr. Wolfgang BURTSCHER Deputy Director-General, Directorate-General for Research and Innovation of the European Commission.

I would also like to take this opportunity to express my deepest gratitude to Professor Caroline PAUWELS and Vrije Universiteit Brussel, where KUBEC is located and with whose generous support this symposium was made possible.

Kobe University has been holding its Brussels European Centre Symposium every year since 2011. With the participation of researchers and students from Japanese and European institutions, the annual Symposium has been an important occasion for the participants to discuss collaboration in research and education. In last's year Symposium on smart and healthy society – the very first Symposium I attended as President of Kobe University – I was able to appreciate this value of our Symposium at first hand, and I wish all of you the same stimulating experience today.

The 7th Symposium today sees four sessions – two in the sciences, two in the humanities and social sciences – against the background of our transitioning societies both in the EU and Japan.

In one respect, we are in an age where innovative technologies are increasingly demanded to better address our needs. Here it is important, I believe as a physicist myself, that we promote not only invention of cutting-edge technology but also continuous pursuit of fundamental scientific research, whose practical value may not be easily and immediately appreciable for all. For progress in such research is gradual and so is the understanding of its social implications.

In another respect, transition is taking place in terms of our demography, with our population diversifying as ever. Ours is also an age where migration and consequently multiculturalisation are happening at an accelerated pace. What must happen at the same pace as these phenomena is, of course, the arrangement of measures to integrate different, or even opposing, cultures and values into existent communities.

Within the context of these situations, today we will be able to witness how researchers from Europe and Japan are

collaboratively working on advanced research in Data Science, Cultural Diversity, Migration and Security, and Particle Physics.

On a happier note about our time, 2016 marks the 150th anniversary of diplomatic relationship between Belgium and Japan. In this connection, on October 14th in Osaka, Kobe University had the distinct honour of hosting academic events with their Majesties the King and the Queen of the Belgians alongside the Belgian academic delegation. Gaining significant momentum from the Belgian state visit, Kobe University and its Brussels European Centre will continue to promote international collaboration with European universities and research institutes. I sincerely hope that today's symposium will be a step forward to realise our resolution and a meaningful event for all of you.

Thank you very much for your participation.



Prof. Caroline Pauwels

Rector of Vrije Universiteit Brussel

Dear distinguished guests,

Dear colleagues,

It is my pleasure to welcome you on our campus for the 7th Kobe University Brussels European Centre Symposium "Emerging Sciences and a Changing World: EU-Japan in Transition". It is not the first symposium that Kobe University organizes here in Brussels, but it is the first time we do it jointly, and I must admit, we should have done it sooner.

As a comprehensive university in the cosmopolitan city of Brussels, we want to be perceived as an innovative, internationally oriented university. Our attitude is one of mediation and critical discussion, mitigated by high quality research. We provide capacity for abstraction of everyday problems and we nurture early adopters of new technologies, scientific theories and social models. We wish to be the source of new creative talent with a clear intercultural focus that goes beyond the obvious and that is open to new ideas and perspectives.

We are convinced that the competences, experience and knowledge, shared in a close collaboration with partner universities, are key to cope with the complexity of the current global issues. Together, we can also better prepare our students for new career paths, taking into account the extended life span, longer careers, faster job changes and the required flexibility, shorter economic cycles, the worldwide war for talent and the much needed global intercultural skills.

Occasional personal good contacts often are at the onset of fruitful collaborations and we should cherish these. However, it is our endeavor to move towards institutional collaboration with selected partners, whereby the collaboration becomes structured, considering it reaches a certain volume.

Institutional partnerships are extremely important to realize more than just individual in- and - outgoing student mobility and exchange, but also to build, next to occasional research synergies, sustainable cooperation structures such as international joint educational programmes, joint research groups, joint and dual degrees, embedded in a system of quality assurance that transcends the boundaries of the own university.

Collaboration with selected institutional partners has many benefits: a trustworthy relationship, reduced administrative burden, long term planning, creation of complementarity and task division can be established, leading to a more efficient and high quality approach.

Our vision is to work with partner institutions, rather than to work on the basis of country strategies. The VUB is looking forward to also establishing institutional collaboration with Japan, next to the already existing collaborations between professors.

The recent Belgian State mission to Japan reinforced our mutual intentions to intensify our collaboration and I am very grateful to the rector of Kobe University, Mr. Takeda, that we follow up on our cooperation in such a short lapse of time.

Since research is of intrinsic interest to academics, a symposium like this one, is a perfect occasion to learn about each other's research agenda and to find joint interests. Quality research is inherently connected with an international community of peers, proven again today, with the contribution of several researchers from Japan, Germany, Georgia and Belgium.

The themes of today, Data Science, Cultural Diversity, Migration and Security, and Particle Physics are good choices.

Nowadays, data flow as a torrent into every aspect of the international economy and constitutes an invaluable capital for industrial and governmental institutions. In the age of the Internet of Things and Big Data, social media platforms are connecting millions of users around the globe as well as millions of networked sensors, such as mobile phones, smart energy meters, and distributed sensors. They sense and transmit data constantly. It is widely acknowledged that the use of such amounts of data can transform science, society and economy.

Culture and migration are connected topics. People's mobility has been considered desirable for a society because interaction between different people and cultures can be the source of innovative activities which contribute to the development of each society. In the recent situation of the world, however, it is conflicts, if anything, that are emerging. It is not easy to find solutions for these issues. The interdisciplinary and intercontinental discussions of today promise to be very interesting.

Finally, this workshop includes topics that address questions challenging the most basic understanding of the fundamentals of science.

How did the universe evolve? What happened during and just after the Big Bang? What are the smallest constituents of matter and are they really the smallest? What is the nature of the Dark Matter that constitutes 80% of the matter in the present universe?

The research in high energy physics at the VUB and at Kobe University, and the quest for Beyond the Standard Model physics involves large international networks of researchers. The communication and cooperation are crucial to make ground breaking progress. This workshop provides a fertile ground for sharing expertise, spreading ideas and initiate new collaborations.

I wish you all a fruitful and instructive day. In western culture, the number 7 is a lucky number. In Japanese culture, the numbers 7 and 8 are lucky numbers. Therefore, I am looking forward to also organizing the next symposium together.

Enjoy your day!



H.E. Mr. Kazuo Kodama

Ambassador of Japan to the European Union

Dr. Hiroshi Takeda, President, Kobe University,
Dr. Caroline Pauwels, Rector, Vrije Universiteit Brussel,
Dr. Wolfgang Bartscher, Deputy Director-General, Research and Innovation, European Commission,
Distinguished guests,
Ladies and Gentlemen,
Good morning to every one of you.

It's a great honour to be here at the 7th Kobe University Brussels European Centre Symposium, jointly organized with Vrije Universiteit Brussel.

[Introduction]

I arrived in Brussels in September as Ambassador of Japan to the European Union.

It is clear that I have arrived in Brussels at a pivotal moment for the EU, and as such I have 2 major priorities. One of these is to facilitate the conclusion of the Japan-EU/Economic Partnership Agreement (EPA/FTA) and the Strategic Partnership Agreement (SPA). Our relationship in recent years has significantly deepened and strengthened, but with the prospect of new comprehensive agreements, namely the EPA and the SPA, it is time for us to elevate our cooperation to an even higher level.

My other priority is to closely monitor the Brexit process. The Government of Japan has set up a task force on Brexit, and at the beginning of September, we issued a message to the UK and the EU. For those who haven't read it yet, you can find it on the Mission of Japan's website. It is an important 15-page message to both parties in the forthcoming negotiations. I am not going to describe it in detail here, but I encourage you to take a look at the summary on the very first page as it will give you a good idea of our position on Brexit. The crystal clear message here is that Japan wants to avoid any unpleasant surprises or uncertainty, and wishes to maintain an open Europe even after the UK leaves the EU. There is still much uncertainty surrounding Brexit. In fact, nothing is certain yet at this stage, and this uncertainty is a major problem for the stability of our economy. In this respect, I welcome the recent remarks by Mrs May at her very first summit of EU leaders last month, namely that she wishes that Brexit will be "a smooth, constructive, orderly process minimizing uncertainty". This is exactly what we expect and, as Ambassador to the EU, I intend to closely observe the process of Brexit and its impact on Japan and the international community.

[Science and Technology Cooperation between Japan and EU - 1]

Japan-EU relations do not merely concern economics but also a wide range of other fields, such as science and technology. Japan and the EU, as two of the world's leading research hubs, have a long history of highly successful cooperation in science and technology. For example, on 1 October the Delegation of the EU to Japan hosted the 7th Japan-EU Science Policy Forum in Kyoto, where the topic was "Nurturing Future Human Resources for Science, Technology and Innovation". Three weeks later, the 3rd EU-Japan Task Force meeting on Science and Technology cooperation was convened in Brussels. Its objectives included the enhancement of future Japan-EU cooperation as well as the preparation of the 4th Japan-EU Joint Science and Technology Committee Meeting which will take place next year. I believe these events underline the dynamic and fruitful nature of Japan-EU cooperation in the field of science and technology.

[Science and Technology Policy in Japan]

I would like now to touch upon the latest developments in Japan related to science and technology. This April, the

5th Science and Technology Basic Plan, which covers the next 5 year period, was launched.

The question before us is whether innovation in science and technology can foster sustainable and inclusive development both here and abroad. I am confident that this Fifth Science and Technology Basic Plan will deliver a positive answer to this question by providing a roadmap that will lead the Japanese people, as well as people throughout the world, towards a more prosperous future.

I would like to briefly explain the background of this latest Basic Plan.

Japan has long placed tremendous importance in the continuous improvement of its science and technology sectors, and this is perhaps best demonstrated by the considerable number of Japanese Nobel laureates in scientific disciplines. To date there have been 22 Japanese and Japanese-born recipients of the Nobel Prize for achievements relating to science. Furthermore, for the past 3 years in a row, at least one Japanese researcher has featured among the winners of the Nobel Prize in the scientific fields.

I was delighted to learn that this year Professor Yoshinori Ohsumi was awarded the Nobel Prize for Medicine for his discoveries of mechanisms for autophagy.

Despite these impressive recent successes, it is important to note that many prior achievements by Japanese Nobel Laureates are already several decades old, and that the groundwork has to be done now in order for Japanese scientists to continue to play a world-leading role and to continue vying for the Nobel Prize.

Meanwhile, our country must also find solutions to challenges such as our aging population, declining fertility rate, as well as the existential need to transform our society into a low carbon economy and to be resilient towards natural disasters. Moreover, through advances in ICT such as IoT (Internet of Things) and AI (Artificial Intelligence), we are entering what is known as the "Era of Drastic Formation" in which the social and economic structures of the nation are significantly changing on a daily basis. In addition, knowledge and value creation processes are changing, as demonstrated by the increasing emphasis on open-innovation in science and technology, as well as the trend towards open-science.

In order to meet these challenges, the Japanese government is implementing a bold policy agenda which will make Japan "the country that is best suited for innovation in the world" based on this 5th Science and Technology Basic Plan.

[Society 5.0]

With the 5th Basic Plan, Japan is proposing a radically new concept: The realization of "Society 5.0", a society in which the challenges facing all countries are resolved by advances in science and technology.

At the beginning of human history, we lived in hunter-gatherer societies. This was "Society 1.0". The first upgrade occurred when we developed into agrarian societies, or "Society 2.0". Society 3.0" was brought about by the industrial revolution and "Society 4.0" by the information age.

We now stand on the threshold of "Society 5.0". In this era, advances in AI (Artificial Intelligence), robotics, communication, big data and cloud computing will combine to solve the seemingly unresolvable problems facing our countries. Throughout history, developments in science and technology have consistently helped advance our societies and will continue to do so.

[Science and Technology Cooperation between Japan and EU - 2]

The theme of today's symposium, "Emerging Sciences and a Changing World", is a particularly important one for Japan. It is clear that Japan must cooperate closely with international partners such as the EU in order to tackle regional and global challenges. The Japan-EU strategic partnership is inspired by the fact that our two regions face many common problems that span a wide range of policy areas such as healthcare, energy, and the environment to name a few. Both Japan and the EU strongly believe that closer cooperation in research and innovation will allow us to better promote the excellence of our research, improve the competitiveness of our industries, and overcome common and global difficulties together as partners.

I believe that greater efforts are needed to enhance our cooperation in all areas, and we must endeavour to make

the Japan-EU relationship stronger than ever before.

[Today's symposium]

I have taken a look at the program of this symposium. The themes which will be discussed range from natural science, such as the Data science and Neutrino experiments, to social science, such as Unity in Diversity, Migration and Security. It is natural and sensible to discuss such a wide range of topics, as there is so much ground to cover when we talk about Japan-EU relations. So I am glad to learn that many aspects of the Japan-EU relationship will be discussed at today's symposium. It is always a great opportunity for experts and academics to take stock of current affairs relating to Japan and Europe.

To conclude my remarks, I would once again like to express my appreciation for being invited here to speak, and I look forward to fruitful, informative and truly interactive discussions among participants. Let me assure you that I will do my level best as Japanese Ambassador to the EU to help build upon the many years of successful cooperation between Japan and the EU, and to usher in a new phase of our partnership at every level. I hope that with the continued presence of the Kobe University Brussels European Centre, we will have many more opportunities like this symposium to gather together to discuss Japan-EU relations in future.

Thank you very much for your attention.

Mr. Wolfgang Burtscher

Deputy Director-General of Directorate-General
for Research and Innovation, European Commission



Your Excellency, Ladies and Gentlemen,

I would like to start by thanking the organisers of the conference - Kobe University and VUB – for providing me with this opportunity to present the opportunities for Japanese researchers, research organisations and companies to participate in Horizon 2020 – the EU's largest Framework Programme for Research and Innovation ever, and the one most open to international cooperation.

This symposium is very timely as we have just published the **second implementation report on our Strategy for International Cooperation in Research and Innovation, which includes a roadmap for cooperation with Japan.**

Let me also take this opportunity to congratulate the research and innovation community in Japan on the **2016 Nobel Prize in Physiology/Medicine awarded to Mr Yoshinori Ohsumi** at the Tokyo Institute of Technology for his discoveries of mechanisms for autophagy (the process that cells use to destroy and recycle cellular components).

Now, let me say a few words on the importance that I attach to strengthened cooperation between the EU and Japan in research and innovation.

Openness to the world is a strategic priority for the EU to excel in science and technology (S&T), attract researchers and innovators to Europe, get research results faster to the market and create new business

opportunities, jobs and growth. It is also crucial for solving global societal challenges in partnership and for allowing the EU to have a leading voice in global debates and developments.

Japan is a key strategic partner for Europe in S&T. We face many of the same challenges - including an ageing population, energy security and access to critical raw materials. We also defend a similar approach to key international objectives such as international security, development aid and combating climate change. The role of research in these areas is key. We expect EU-Japan cooperation in a number of strategic R&I areas to increase the impact of research, promote innovation and strengthen the capacity to jointly tackle global societal challenges. The **EU-Japan Strategic Partnership in Research and Innovation (R&I)** that was adopted by the EU-Japan Summit in May last year is composed of various elements, which are also addressed in our R&I roadmap for cooperation with Japan.

We focus on **framework conditions** that facilitate strengthened R&I cooperation, such as the establishment of mechanisms for the joint funding of research and innovation projects. In the current Work Programme of Horizon 2020, we are implementing for the first time the **co-funding scheme developed by Japan's Science and Technology Agency** (initially in the areas of materials and power electronics).

We are also focusing on measures to enhance the **mobility of researchers**, such as the cooperation arrangement between the European Research Council (ERC) and the Japan Society for the Promotion of Science, and opportunities offered by the Marie Skłodowska-Curie Actions (MSCA).

We agree on **deepening cooperation in strategic thematic areas**, such as in ICT, Aeronautics and Materials research, and to strengthen cooperation in areas such as Health, Energy research, Environment/Climate change and Research infrastructures (including in High-energy physics).

We have also extended our partnership to **consultations on Science, Technology and Innovation policies** such as Open Science, where the European Commission and Japan are co-chairing the G7 Working Group on Open Science.

Frequent consultation at multiple levels is important to further deepen the EU-Japan strategic cooperation, and I can inform you that a couple of weeks ago, the **3rd EU-Japan Task Force meeting on S&T cooperation** was convened here in Brussels with representatives from several Japanese ministries and agencies, with very fruitful discussions on areas where cooperation can be strengthened and developed.

Both sides are committed to delivering on the new Strategic Partnership in R&I. From our side, we strongly encourage an increased level of participation of Japanese researchers and research organisations in the current Work Programme of Horizon 2020, but also in view of the next that we will start developing in early 2017, and which will cover the years 2018-2020.

The focus of this symposium is on "Emerging Sciences and a Changing World", where topics such as Data science and big data; European values and integration; Migration and Security; and Beyond Standard Model at LHC and Neutrino experiments are addressed. These are important themes in Horizon 2020, and in some, there is already substantial cooperation between Japanese and European researchers, in particular in the field of Data science and big data, and particle physics.

Technically, there are **two ways to cooperate with industrialised countries such as Japan in Horizon 2020:**

The "**General Opening**" means that any organisation from any country can join a research and innovation project consortium and submit a proposal, which can be called a 'bottom up' approach. The evaluation is based solely on the quality of the proposal submitted by the consortium.

In Horizon 2020, Japanese applicants have so far submitted 126 eligible proposals, involving 163 participations to collaborative actions. This has led to 11 successful projects, involving 13 participations, with a success rate of 19.8% (as compared to 12.7% overall). Participation so far is mainly in the areas of Environment, Space, Health, Research infrastructures, ICT, nanotechnology and materials research, and Nuclear research (Euratom).

As regards researchers' mobility, Japanese research entities have so far participated 36 times in the Horizon 2020 Marie Skłodowska-Curie Actions (MSCA), and 13 researchers of Japanese nationality have participated in the MSCA. In addition, there have been 8 Japanese researchers that have acquired a European Research Council grant.

I would also like to mention that EU-based branches of Japanese companies have participated actively in Horizon 2020: **36 different Japanese companies based in Europe** have participated in 57 projects.

In the "**Targeted Opening**" or 'top-down' approach, international cooperation with specific countries is either encouraged or required in the proposal. There are 23 call topics in Work Programme 2016-17 that specifically encourage cooperation with Japan in areas such as ICT, transport, research infrastructures, digital security, and nanotech and advanced materials to mention but a few.

One way of implementing this targeted opening is through "coordinated or joint calls", which are organised jointly with funding organisations from third countries. This has worked well with Japan with **9 coordinated calls** so far in the fields of ICT, aeronautics, energy, materials/critical raw materials, and in active and healthy ageing. These calls have been launched together with Japanese ministries and agencies such as the Ministry of Internal Affairs and Communication (MIC) in ICT and ICT robotics for healthy and active ageing; the Ministry of Economy, Trade and Industry (METI) in aeronautics; Japan's Science and Technology Agency (JST) in new materials and critical raw materials; and the New and Industrial Technology Development Organisation (NEDO) in new energy technologies.

In conclusion, Horizon 2020 is 'Open to the World' – and we would be pleased if more Japanese researchers and research institutions would take the opportunity to join in the cooperation for the benefit of us all. I am delighted to see that the co-organiser of this conference - Kobe University - already has participated in projects in the EU's framework programme.

I would again like to thank the organisers for providing me this opportunity to present our strategic cooperation with Japan in research and innovation, and the participation opportunities provided by Horizon 2020.

I would like to wish you all a very successful symposium.

Thank you for your attention.



Session 1

10:00 - 13:30

Data Science in the Age of Big Data

Chair: Prof. Peter Schelkens, Vrije Universiteit Brussel, Belgium

Speaker: Dr. Tias Guns, Vrije Universiteit Brussel, Belgium
Dr. Takashi Matsubara, Kobe University, Japan
Dr. Kimiaki Shirahama, University of Siegen, Germany
Prof. Aleksandra Pizurica, Ghent University, Belgium
Dr. Koji Eguchi, Kobe University, Japan
Dr. Nikos Deligiannis, Vrije Universiteit Brussel, Belgium

Session 1

Today we confront the risk of drowning in a flood of big data. Big data has become an important part of business and daily life. Data science is a key technology to leverage big data. This session aims to cover the latest trends in data science, including machine learning, signal processing, and some important real-world applications.

Professor Peter Schelkens served as the chair of this session on data science and briefly introduced the aims and objectives of the session. Following his introduction, six young researchers introduced innovative technologies in this field.

Doctor Tias Guns focused on an intersection area between data mining and constraint solving. He reviewed how constraint solving and optimization offer solutions for problems such as what kind of knowledge a person is interested in from among a large amount of knowledge and patterns extracted by data mining.

Doctor Takashi Matsubara presented on how to give prior knowledge on a target domain to artificial neural networks by modifying their structures or adding constraints, dealing with several case studies on non-big data problems, such as general image processing and mental disease diagnosis based on medical images.

Doctor Kimiaki Shirahama proposed a multimedia sensing system that identifies where a particular event occurs over a large amount of videos on the Web. He also addressed a video surveillance system in a crowded scene that detects groups of pedestrians who are moving or standing together. A system he developed that monitors a person's activities from multiple sensors was also demonstrated.

Professor Aleksandra Pizurica introduced multiresolution analysis and sparse representation, statistical image modelling with Markov Random Fields, and emerging non-local processing techniques. She also presented compressed sensing for medical image reconstruction, and then demonstrated image-processing applications of virtual restoration and painter style characterization in a 15th-century polyptych.

Doctor Koji Eguchi presented parametric and nonparametric Bayesian models to address uncertainty in analyzing a large amount of complex data, especially multimodal data, video data, and heterogeneous network data. The state-of-the-art latent variable models called SymCorrLDA and its nonparametric extensions were also demonstrated in multiple different scenarios.

Finally, **Doctor Nikos Deligiannis** presented a novel large-scale data aggregation mechanism based on compressed sensing of heterogeneous data gathered by a large number of wireless sensor devices. He also presented a state-of-the-art data recovery algorithm that leverages correlated information from multiple heterogeneous signals by using the statistical model of copula functions. After the presentations, all participants discussed these novel technologies and their applications, and explored the possibility for collaboration among those projects.

Prof. Peter Schelkens Chair

Department of Electronics and Informatics,
Vrije Universiteit Brussel, Belgium



Dr. Tias Guns

Business Technology and Operations (BUTO),
Faculty of Economics and Social Sciences & Solvay Business School.
Vrije Universiteit Brussel, Belgium

Tias Guns is an assistant professor at the BUTO lab of the VUB in Brussels, Belgium. His research lies on the border between data mining and constraint programming, and his main interest is in combining methods from both fields. His PhD was awarded by both the CP and AI community, and he has organized a number of workshops and a special issue on the topic of combining constraint programming with machine learning and data mining.

“Constraint-based data mining with constraint solving”

Abstract:

In today's data-rich world, data mining techniques allow us to extract knowledge from data. However, the amount of knowledge and patterns extracted is often overwhelming. This can be overcome by using constraints to specify more precisely what kind of knowledge one is interested in; simple or complex, with certain properties, statistical guarantees, etc. This asks for generic solution methods that can handle a wide range of such constraints. In this talk, I will review how constraint solving and optimisation offers such generic solution method; what the benefits and challenges are; and how they can be overcome.

Dr. Takashi Matsubara

Graduate School of System Informatics, Kobe University, Japan



Takashi Matsubara is an assistant professor at the Graduate School of System Informatics, Kobe University, Japan, since 2015. He received his M.E. and Ph.D. from Osaka University, Japan, in 2013 and 2015 respectively. He is also a senior visiting researcher at the Center for Information and Neural Networks (CiNet), Japan. His research focuses on neural computation, brain dynamics, neural networks, and machine learning.

“Artificial Neural Networks with Domain Knowledge”

Abstract:

Artificial neural networks (ANNs) are known as universal approximators, which can mimic arbitrary functions, and have achieved success in various regression tasks in a supervised manner, such as image classification and object detection. However, even though we receive much more data from various sources, we do not always have a desired dataset huge enough to obtain features of the target domain automatically. For example, the cost of a detailed examination of a potentially diseased subject is beyond comparison with that of obtaining tons of animal images from the Internet. We cannot enjoy the benefits of the ANNs. Fortunately, instead of more data samples, we can give prior knowledge of the target domain to the ANNs by modifying their structures or adding constraints, and thereby we have the ANNs become similar to ordinary parameterized models with no loss of their flexibility. Taking general image processing and diagnosis of mental disease based on medical images as examples, this talk will introduce such solutions to non-big data problems.

Dr. Kimiaki Shirahama

Research Group of Pattern Recognition,
Department of Electrical Engineering and Computer Science,
Faculty IV : Science and Technology, University of Siegen, Germany



Kimiaki Shirahama received his B.E., M.E. and D.E. degrees in Engineering from Kobe University, Japan in 2003, 2005 and 2011 respectively. After working as an assistant professor in Muroran Institute of Technology, Japan, since 2013 he is working as a postdoctoral researcher at Pattern Recognition Group in the University of Siegen, Germany. From 2013 to 2015, his research activity was supported by the Postdoctoral Fellowship of Japan Society for the Promotion of Science (JSPS), and is now supported by the German Federal Ministry of Education and Research within the project “Cognitive Village: Adaptively Learning Technical Support System for Elderly”.

“Multimedia Sensing: Extracting High-level Semantic Information from Low-level Multimedia Data”

Abstract:

Nowadays, one can easily record a large amount of multimedia data, and what is more, one can access a huge amount of data on the Internet. A key to efficiently finding interesting data in such a situation is “multimedia sensing” where high-level semantic information is extracted from low-level alpha-numerical data using machine learning and data mining techniques. In this presentation, I will present three multimedia sensing systems that have been recently developed by our research group. The first system takes as input a large amount of Web videos and identifies the ones where a particular event (e.g., birthday party or changing a vehicle tire) occurs. The second system focuses on video surveillance in a crowded scene and detects groups of pedestrians who are moving or standing together. The last system continuously monitors the activities of a person based on data, which are obtained from multiple mobile/wearable sensors. I would like to discuss these multimedia sensing systems and possibly pave the way for future international research collaboration.



Prof. Aleksandra Pizurica

Department of Telecommunication and Information Processing,
Ghent University, Belgium

Professor at Ghent University since 2009 (Dipl. Ing. Degree 1994, Magister of Science 1997, Ph.D. degree 2002). Senior Area Editor for the IEEE Transactions on Image Processing (since 2016) and Associate Editor for the IEEE Transactions on Circuits and Systems for Video Technology (since 2016). Associate Editor for the IEEE Transactions on Image Processing (2012-2016) and the lead guest editor for the EURASIP Journal JASP, Special Issue “Advanced Statistical Tools for Enhanced Quality Digital Imaging with Realistic Capture Models” (2013). Received the scientific prize “de Boelpaep” for 2013-2014 from the Royal Academy of Science, Letters and Fine Arts of Belgium.

“Emerging Tools in Digital Image Processing and Selected Applications in Medical imaging and Art Investigation”

Abstract:

This talk will address some of the main directions in modern digital image processing in an informal manner, linking the theory with practical applications. The emphasis will be on the following topics: multiresolution analysis and sparse representation, statistical image modelling with Markov Random Fields and emerging non-local processing techniques. We shall also address basic principles of compressed sensing with applications in medical image reconstruction. In particular, recent results in the recovery of Magnetic Resonance Images (MRI) from partial data using compressed sensing and Markov Random Fields will be demonstrated, showing potential for significantly improved reconstruction quality and/or reduced scanning time. The second part of the talk will be devoted to applications of emerging image processing tools in art investigation, focusing on virtual restoration and painter style characterization in a 15th century polyptych by Hubert and Jan Van Eyck, the Ghent Altarpiece. We will also show how mathematical tools and computer simulations can be of help to restorers and art historians in the ongoing conservation-restoration treatment of this masterpiece.

Dr. Koji Eguchi

Graduate School of System Informatics, Kobe University, Japan



Koji Eguchi is an Associate Professor at the Graduate School of System Informatics, Kobe University. Before joining Kobe University, he was an Assistant Professor at the National Institute of Informatics (NII), Japan from 2000 to 2006, and a Research Associate at the National Center for Science Information Systems (NACSIS), Japan in 1999. He was also a Visiting Faculty at Carnegie Mellon University in 2012, and a Visiting Scholar at the University of Massachusetts Amherst from 2005 to 2006.

“Modeling Uncertainty in Large, Multimodal Data”

Abstract:

Research on multimodal data analysis is becoming more important than ever due to the increase in the amount of data. One of the approaches to this problem is parametric/nonparametric Bayesian modeling. This talk covers state-of-the-art multimodal topic models called Symmetric Correspondence Topic Models (SymCorrLDA) that can appropriately model multimodal data considering mutual, inter-modal dependencies, as well as their extensions: the models that can learn the number of components from the data (SymCorrHDP) and that can discover a tree-structured hierarchy of latent topics from given multimodal data (h-SymCorrLDA). More advanced models such as those for video analysis and heterogeneous network analysis are also to be covered.



Dr. Nikos Deligiannis

Department of Electronics and Informatics
Vrije Universiteit Brussel, Belgium

Nikos Deligiannis is assistant professor of Data Science in the Electronics and Informatics Department at Vrije Universiteit Brussel. He received a Diploma in Electrical and Computer Engineering from University of Patras, Greece in 2006 and a PhD in Applied Sciences from Vrije Universiteit Brussel in 2012. He was senior researcher at the Department of Electronic and Electrical Engineering at University College London and consultant on big data technologies at the British Academy of Film and Television Arts (BAFTA), UK. His research interests include big data mining, processing and analysis, internet-of-things networking, and distributed processing.

“Large-scale heterogeneous data gathering and recovery using a copula prior”

Abstract:

The technology behind wireless sensor networks and the internet of things enables sensing, collecting, and communicating data in urban and rural environments. Such a large-scale heterogeneous data collection poses various challenges in view of the limitations in transmission, computation and energy resources of the associated wireless devices. In this talk we will present a novel large-scale data aggregation mechanism, which performs compressed sensing of heterogeneous data gathered by a large number of wireless sensor devices within a geographic area. We will also present a novel data recovery algorithm—built upon belief-propagation principles—that leverages correlated information from multiple heterogeneous signals, called side information. To efficiently capture the statistical dependencies among diverse sensor data, the algorithm makes use of the statistical model of copula functions. Experimentation based on heterogeneous air-pollution sensor measurements from the United States Environmental Protection Agency database showed that the proposed copula-based design provides significant improvements in mean-squared-error performance against state-of-the-art schemes using classical compressed sensing, compressed sensing with side information, and distributed compressed sensing, and offers robustness against measurement and communication noise.

Session 2

10:00 - 13:30

European Values – Unity in Diversity

Chair / Speaker: Prof. Hiroko Masumoto, Kobe University, Japan

Speaker: Prof. Harald Schwaetzer, Cusanus Hochschule, Germany
Prof. Nobuo Kazashi, Kobe University, Japan
Prof. Kiyomitsu Yui, Kobe University, Japan
Prof. Joachim Schild, Trier University, Germany
Prof. Taiji Hagiwara, Kobe University, Japan
Prof. Henrieke Stahl, Trier University, Germany
Prof. Alexander Kartoza,
Ivane Javakhishvili Tbilisi State University, Georgia
Prof. Andreas Regelsberger, Trier University, Germany

Session 2

The whole world was shocked by the unexpected result of the United Kingdom European Union membership referendum which took place on 23 June 2016: 51.9% of voters voted in favour of leaving the European Union. In this session we tried to reconsider European values from the perspective of the humanities and social sciences.

First, **Professor Hiroko Masumoto** (Kobe University) introduced the framework of the session and mentioned that Switzerland, officially known as the Swiss Confederation, has the same motto of "Unity in Diversity" as the European Union. **Professor Harald Schwaetzer** (Cusanus Hochschule) gave a talk on the ideas of Nicholas of Cusa, from whom the motto originates. **Professor Nobuo Kazashi** (Kobe University) considered the influence of European ideas such as "freedom and rights" on Japanese society at the time of modernization. **Professor Kiyomitsu Yui** (Kobe University) suggested that European values are now in crisis, and Japan can contribute to the discussion from a comparative perspective on the level of value orientation. **Professor Joachim Schild** (Trier University) discussed the impact of Brexit on the Franco-German relationship and on the roles of both countries within Europe from the viewpoint of political science. The European Union is above all an economic union, so **Professor Taiji Hagiwara** (Kobe University) discussed labor value and rate of exploitation in the global economy.

After a coffee break, we turned our sight to the countries which are not EU members but closely connected with Europe, such as Ukraine and Georgia: **Professor Henrieke Stahl** (Trier University) analyzed some political poems during the time of the Russia-Ukraine crisis and considered the process of public opinion formation. **Professor Alexander Karotozia** (Tbilisi State University) showed us a multilingual and multicultural situation in the Georgian capital at the beginning of the 20th century. Finally, **Professor Andreas Regelsberger** (Trier University) gave a presentation about intercultural exchange between Germany and Japan from the end of the 19th century to the beginning of the 20th century. He suggested that this exchange was especially intensive in the field of theatre.

After the presentations, all participants discussed European ideas and values and their influences on other areas of the world.

Prof. Harald Schwaetzer

Institute of Philosophy, Cusanus Hochschule, Germany



Since 2014 Vice-President of Cusanus Hochschule, Chair of Philosophy, Visiting Professor at the University of Hildesheim, Member of the scientific board of the "Kueser Akademie für Europäische Geistesgeschichte", Co-Editor of "Allgemeine Zeitschrift für Philosophie", "Coincidentia. Zeitschrift für Europäische Geistesgeschichte", "Texte und Studien zur europäischen Geistesgeschichte", "Philosophie interdisziplinär", Dr. phil. 1998, Habilitation: 2005, 2002-2009 Cusanus-Dozent at the Institut für Cusanus-Forschung, Trier University, 2009-2014 Chair of Philosophy at the Alanus University, Alfter near Bonn.

"Towards Europe – Nicholas of Cusa's Contribution"

Abstract:

The paper will focus on the European ideas of the 15th century, especially on Nicholas of Cusa. The 15th century is a period which has developed both the idea and the reality of Europe. Nicholas can be considered as an architect of Europe as well as an important figure of intercultural and interreligious dialogue. Nicholas became one of the architects of the Concordat of Vienna (1448). All this is based on his philosophy. He claims that man has the power and the free will to form himself. He combined his idea of moral as well as intellectual formation with a social and political philosophy. The paper will argue that Cusa's ideas are a convenient corrective of today's opinions.



Prof. Nobuo Kazashi

Graduate School of Humanities, Kobe University, Japan

Professor of philosophy. PhD in philosophy from Yale University. He specializes in Japanese thought, comparative philosophy and peace studies. Involved in peace activities, he co-directed the World Nuclear Victims Forum held in Hiroshima in 2015. Publications in English include "The Passion for Philosophy in a Post-Hiroshima Age" and "The Musicality of the Other: Schutz, Merleau-Ponty, and Kimura," and, in Japanese, Nishida's Philosophy of History (ed.) and The Unending Iraq War: Questioning Anew from Fukushima (co-ed.). Recipient of the 6th William James Prize by the American

Philosophical Association (1991) and a practice award by the Japanese Society for Science and Technology Studies (2012).

“Liberté” and “Brüderlichkeit” as Ideals: Transformative Assimilation in Modern Japan

Abstract:

Japan’s modernization was a process of transformative assimilation of European ideas in almost every field. They included such basic ideas as “individual and society,” “freedom and rights,” and even “love,” for which no fit corresponding words existed in Japanese language; hence, massive endeavors to create neologisms in translation. Firstly, we consider what was at stake in philosopher Nakae Chomin’s struggle in translating Rousseau’s *Du contrat social*, which played an igniting role in the Movement for Freedom and Popular Rights in the early phase of Japan’s modernization. Then we overview the changes in evaluation Rousseau’s democratic ideas were to undergo over time in Japan.

Secondly, we reflect on the way the ideas of “pan-Europe” and “fraternity (Brüderlichkeit)” advocated by Count Richard von Coudenhove-Kalergi, Japanese-born founder of the Pan-European Movement in the 1920s, inspired the formation of the ideas of “pan-Asia” and “the east-Asia community” during the war times and in recent days as well.

Lastly, we try to bring into light some questions of global significance inherent in these processes of transformative assimilation by referring to Emmanuel Todd’s understanding of the “diversity of the world” in terms of the correlation between family structure and value system.

Prof. Kiyomitsu Yui

Graduate School of Humanities, Kobe University, Japan



Executive Assistant to the President, Kobe University; Executive Director, Centre for EU Academic Collaboration, Kobe University; and Professor of Sociology at Graduate School of Humanities. Asian Chair at Sciences Politiques Paris, 2006 – 2007, and Visiting Scholar at Harvard University, 1996-1997. Currently, President of the Society for Sociological Theory in Japan.

“Multiple Modernities in Transition in Europe and Asia; Japan as a Public Asset”

Abstract:

The EU is now fluctuating because of the fundamental impacts of the refugee crisis, terrorism and discrepancy, the clash between segregation and cosmopolitanization that all lead to a deep challenge for EU values. At the basis of the fluctuation there are different past dependencies of modernities among EU countries. Based upon these different constellations and structures of modernization courses we are now experiencing contemporary transformation of the modern. European values in transition and modernization in transition are intertwined. To understand the situation, including that of the relationship between the EU and Asia, Japan as the first modernized country outside Europe and the USA can contribute to the discussion in comparative perspective on the level of value orientation. In this regard, we can utilize Japan as a public academic asset to understand the difficulties we are facing and participate in the discussion.



Prof. Joachim Schild

Department of Political Science, Trier University, Germany

Joachim Schild holds the Chair of Comparative Politics at Trier University in Germany. He was awarded a diploma in Political Science from the Free University Berlin in 1989 and a doctoral degree (Dr. rer. pol.) from the University of Stuttgart, Germany, in 1999. After working for the Franco-German Institute in Ludwigsburg 1990-2002 and for the German Institute for International and Security Affairs (SWP) 2002-2003, he joined Trier University in 2003. His research focuses on Franco-German relations in the European Union, French European Policy and the political economy of European integration. He is the author (with Ulrich Krotz) of *Shaping Europe: France, Germany, and Embedded Bilateralism from the Elysée Treaty to Twenty-First Century Politics* (Oxford University Press, 2013).

“Shifts in Power and Influence: Franco-German-British Relations in a Post-Brexit EU”

Abstract:

This contribution scrutinizes the impact and consequences of Brexit on

(a) the role and relevance of the bilateral Franco-German link within Europe;

(b) France’s and Germany’s individual roles, standings, and power within the bilateral link and with the EU at large; and

(c) the two countries’ bilateral relationships with the post-Brexit UK.

Brexit could imply significant shifts regarding the roles and influence of the Franco-German couple and the two states separately within EU affairs. Furthermore, it will change the preference configurations, strategic options, and coalition patterns among Member States in foreign, security, and defense policy, as well as on single market issues, trade policy, and budgetary politics. In particular, Brexit might even further accentuate the importance of the historically influential Franco-German relationship, now also in policy domains in which Britain hitherto has played a significant role. If Brexit triggers wider disintegrative tendencies, Germany and France are likely to assume a shared leadership role in order to preserve the Union’s integrated core, both geographically and functionally.

Prof. Taiji Hagiwara

Graduate School of Economics, Kobe University, Japan



Professor at Graduate School of Economics, Kobe University, Japan. Awarded MA Econ. from Kobe University in 1983. After working at the Research Institute of Economics and Business Administration, Kobe University as a Research Assistant (1984-1989), he moved to Faculty of Economics in 1989. Visiting Fellow at Science Policy Unit, Sussex University, UK 1991-92, Manchester Institute of Innovation Research, Manchester University, UK 1996-97. His research focuses on Economics of Innovation, Input-Output analysis and Marxian economics.

“Labor Value and Exploitation in Global Economy”

Abstract:

We discuss labor value and rate of exploitation in global economy using the international input-output tables. Labor value is defined as the sum of direct labor and indirect labor, which can be calculated using input-output analysis. Exploitation means that amount of labor embodied in wage commodity is less than amount of labor sold. Okishio and Morishima proved the Fundamental Marxian Theorem that the conditions of profit existence and the existence of exploitation are equivalent.

In the context of international input-output tables, we introduce the concept of global labor value, which is the vector of embodied labor of various countries. The Theorem should be modified to note that the existence of profit requires exploitation in at least one country. In other words, exploitation may not exist in some countries (non-exploitation).

In an empirical study using international input output tables, we find that (1) there are non-exploitation cases in several countries and (2) during 1995 and 2009, rate of exploitation increased in the Asian countries of China, Japan, Korea and Taiwan, while advanced countries outside Asia decreased in the rate of exploitation.



Prof. Henrieke Stahl

Department of Slavic Studies, Trier University, Germany

Professor at Trier University, Germany, since 2003. PhD from Trier University, Germany, in 2000. Research assistant at Trier University in 1997-2001 and Ruprechts-Karl-University Heidelberg in 2001-2003. Her research focuses on Russian and Polish literature and Russian Philosophy.

“Poetry as Political Participation”

Abstract:

This presentation examines the recent phenomenon of viral political poetry on YouTube. The key question is whether this poetico-political discourse features deliberative qualities in the sense of Jürgen Habermas’s concept of public opinion. The subject of the case study is a poetic discourse field, which falls into the context of the Russia-Ukraine crisis and constitutes its largest and most complex poetic discussion. The initial impulse came from the poem “We Will Never Be Brothers” posted by Anastasia Dmitruk on her Facebook page. The paper shows how the political discourse around Dmitruk’s poem on YouTube functions as a platform for public discussion. To a certain extent it meets the key criteria of public opinion formation: discursivity and configuration. Aesthetic devices, including self-referentiality, allow the participants to both elucidate their different positions and to provide them with complexity, multidimensionality and polydirectionality.

Prof. Alexander Kartoza

Faculty of Humanities, Ivane Javakhishvili Tbilisi State University, Georgia



Professor Kartoza’s research focuses on Translation Studies, Caucasian Studies, Cultural Studies, Linguistics and Germanistics.
2013- Full Professor, Faculty of Humanities, Ivane Javakhishvili Tbilisi State University
2005-2012 Visiting Professor, Faculty of Cultural Studies, European University Viadrina Frankfurt (Oder)
1998-2004 Minister of Education of Georgia
1997-1998 Director of the National Library of Georgia
1989-1997 Head of the Chair of German Philology, Tbilisi State University
1986-1989 Researcher, Experimental Phonetics Laboratory, Tbilisi State University
Research Fellow of the Alexander von Humboldt Foundation (1994-1995; 2005)
Research Fellow of the Thyssen Foundation (2007-2008)

“The Linguistic Shaping and Re-shaping of the ‘Fantastic City’: The Georgian Cultural Scene in the First Third of the 20th Century”

Abstract:

Following the 1917 Revolution and the outbreak of the Civil War in Russia, many Russian artists found refuge in Georgia. The Georgian capital became a ‘Fantastic City’. The most influential Georgian author of that period, Grigol Robakidze, wrote in 1919: “Tiflis is pervaded by an aesthetical perception of the world. So was it in the past, and so it is again today. One can mention lots of names. ... All of them are united by the arts. People coming from different nations and cultures are brothers in art. We believe in that new International. Here in Tiflis must be laid the foundations for its construction.”

The literary life of the ‘Fantastic City’ took a multilingual form. The meaning of ‘multilingual’ is two-fold. On the one hand magazines and books appeared with texts in Georgian, Russian and Armenian, and some Georgian authors even wrote in Russian; on the other hand the so-called ‘Zaum language’ of Futurism developed, whose main aim was the alienation from ‘normal’ language.

After the occupation of Georgia by the Russian Red Army in 1921, the protest against the occupation and annexation led to a linguistic re-shaping of the cultural scene in the ‘Fantastic City’. Again in two respects: firstly all Georgian authors – including those who previously had tried to please their Russian colleagues by writing in Russian – now used only Georgian. Secondly, the futurist alienation from the ‘normal’ language was replaced by an archaic form.



Prof. Andreas Regelsberger

Department of Japanese Studies, Trier University, Germany

Professor of Japanese studies at Trier University, Germany. Awarded Magister and PhD from Hamburg University, Germany in 2003 and 2008, respectively. After working for Hamburg University as a research and teaching assistant, joined Trier University as an academic member. Worked as visiting professor at Western Michigan University, Kalamazoo from 2012 to 2014. Returned to Trier University in 2014 as a professor. His research focuses on Japanese theater, pre-modern Japanese literature and contemporary Japanese poetry.

"Globalization of German and Japanese theater histories"

Abstract:

Both Germany and Japan have seen huge impacts through globalization in their respective theater traditions. Foreign tours of Japanese groups and actors but also the well-known Iwakura mission (1871-72) have fostered intercultural exchange and mutual interest in each other. Traditional Japanese theater forms like no and kabuki had a huge impact on Bertolt Brecht and others. Today, a growing number of international theater festivals are showing productions from all around the world. In my presentation I would like to underline modern and contemporary theater history of both countries, Germany and Japan, in order to highlight two special cases of a phenomenon which is recently being called "global theater histories".

Prof. Hiroko Masumoto Chair

Graduate School of Humanities, Kobe University, Japan



Dean of Graduate School of Humanities and professor of German studies at Kobe University. Awarded MA and PhD from Hiroshima University, Japan.

Visiting Scholar with "Swiss Government Excellence Scholarships for Foreign Scholars" at Bern University, Switzerland from 1994 to 1995. After working at Himeji Dokkyo University, Japan, from 1987 to 2007, joined Kobe University as an academic member. Her research focuses on modern and contemporary German literature.

"Multiculturalism in Switzerland and "Spiritual National Defense" in the 1940s"

Abstract:

"Unity in Diversity" is not only the motto of the EU but also of Switzerland. Switzerland has a long tradition of multilingualism and multiculturalism because it was founded and developed as an alliance of rural and urban communes. This small country has 4 official languages, and 4 different cultures have lived together there peacefully for more than 700 years. Nowadays the Swiss want to see their country as a kind of model for the EU.

In the era of National Socialism, a political-cultural movement called "Spiritual national defense" was very active in Switzerland. Its aim was the protection of Swiss values and customs from totalitarian ideologies. There were two completely opposing tendencies in this movement: on the one hand people were exclusive nationalists and didn't support any refugees from Nazi Germany who could bring different culture(s) to Switzerland; on the other hand they were tolerant of refugees because they thought multiculturalism was the most important Swiss value. In my presentation, I will analyze this unique phenomenon using the example of Schauspielhaus Zürich, the most important German-language theater which accepted actors, directors and playwrights from Germany and achieved great success due to their performance.

Session 3

14:30 - 18:00

Migration and Security

Chair: Dr. Yoko Aoshima, Kobe University, Japan

Speaker: Prof. Tetsu Sakurai, Kobe University, Japan
Mr. Sungwook Hong, Tokyo University of Foreign Studies, Japan
Prof. Christian Kaunert, Vrije Universiteit Brussel, Belgium
Dr. Sarah Leonard, Vrije Universiteit Brussel, Belgium
Prof. Kazunari Sakai, Kobe University, Japan

Discussant: Dr. Christof Roos, Vrije Universiteit Brussel, Belgium

Session 3

People's mobility has been considered desirable for society because interaction between different peoples and cultures can innovate new ideas and activities which contribute to the development of each society. In the recent situation of Europe, however, it is conflicts, if anything, between cultures and within Europe that have been produced in the process of the rapid increase in the influx of refugees from countries in North Africa and the Middle East surrounding the Mediterranean Sea. Here we can watch the process of securitization of migration and even that of cultures.

Professor Christian Kaunert (VUB), as a joint research project with **Dr. Sarah Leonard**, focused on the problem of security in the common refugee policies which the EU developed under the Justice and Home Affairs domain, institutionalized as the framework of a common policy in the Maastricht Treaty. He specifically analyzed the extent and process of the securitization of asylum seekers and refugees and argued that the attitude of the EU promoted protecting the rights of asylum seekers and refugees, and the problem of security remained an indirect impact.

Professor Kazunari Sakai (Kobe University) considered the changes in and the problem of migration governance in Europe while analyzing the logic of progressive securitization of immigration in the process of rapid increase of immigrants and refugees entering the EU through the Mediterranean or the Balkan routes. He asserted that the policy of excluding immigrants was strengthened in the process where culture was linked to security. In addition, migration governance is faced with conflicts between national and regional levels. He pointed to the necessity of reinforcing the role of migration governance on a global level and the lack of a political feedback system for each level reflecting the opinions of individual migrants in order to overcome this conflict.

Professor Tetsu Sakurai (Kobe University) discussed the points of both migrants and citizenship. Regarding civic integration in multiethnic and multicultural societies, people have tried to achieve it using many different methods in Europe. However, he proposed that the problem of civic integration is that there is a gap between two characters, a legal "citizen" and a "member" of the community. This gap is demonstrated by "home-grown terrorism", which was caused by second-generation immigrants and which can be seen as the background of the "Charlie Hebdo" attack in France in 2015.

Mr. Hong Sungwook (Tokyo University of Foreign Studies) treated the problem of refugees in Japan. Japan is criticized by international society: Western countries point out that Japan receives small numbers of refugees from the viewpoint of protection of human rights. He approached not only the problem of refugee governance in Japan but also the change of social structure in Japan from the sociological and cultural anthropological viewpoint. Examination of the topic from this perspective is a necessary precursor to discussions about the reception of refugees, and he introduced the background such as the differences in concepts of public/private between the West and Japan.

Dr. Yoko Aoshima

Chair

Graduate School of Intercultural Studies, Kobe University, Japan



Associate Professor at Graduate School of Intercultural Studies, Kobe University, Japan. PhD in European History from Tokyo University in 2010. After working for the Slavic Research Center, Hokkaido University from 2006 to 2008, joined Faculty of Literature at Aichi University in 2011, and moved to Graduate School of Intercultural Studies, Kobe University in 2013. Her research focuses on Russian and East European history.



Prof. Tetsu Sakurai

Graduate School of Intercultural Studies, Kobe University, Japan

Tetsu Sakurai is Professor of Contemporary Jurisprudence at the Graduate School of Intercultural Studies, Kobe University. He is a legal philosopher, and his current research is focused on global justice and particularly on a tension between fundamental human rights and national membership in liberal democracies. His most recent articles include 'Can We Justify a Human Right to Democracy?', *Philosophy Study* 3 (2013), and 'Should Society Guarantee Individuals a Right to Keep 'Normal Functioning'? A Genetic Minimalist Approach in a Globalized World', in M. Albers, T. Hoffmann and J. Reinhardt eds., *Human Rights and Human Nature*, Springer, 2014. He also co-edited *Human Rights and Global Justice*, Franz Steiner, 2014.

"The Discrepancy between Citizenship and Economic Life in Contemporary Multiculturalizing Societies: What Charlie Hebdo Attacks Suggest to Us"

Abstract:

The recent waves of homegrown terrorism in advanced societies including Charlie Hebdo attacks and the November 2015 Paris attacks indicate that the possession of citizenship no longer guarantees that the possessors identify, feel a part of, or behave as if connected to the political community with which they are affiliated.

While nationalist discourses ascribe the unassimilability of people of Muslim origin to their irreducible cultural differences from French society, Emmanuel Todd argues that the pause in assimilation resulted from the choice of economic stagnation and social fragmentation by the French ruling classes.

An obvious discrepancy has now emerged between the legal and political doctrines of French mainstream society and actual social and economic life, which is driven by market processes. We should see the social integration of immigrants and their offspring not only as the outcomes of a legally constituted civic integration process, but also as an establishment of bright prospects in economic life for younger generations of immigrants. If we are not prepared to provide a favorable perspective for financial independence and socioeconomic achievement for socially disadvantaged young descendants of immigrants, the granting of citizenship alone cannot save them from bleak career prospects, particularly because they can easily be crushed by economic stagnation.

Mr. Sungwook Hong

Tokyo University of Foreign Studies, Japan



Born in Seoul, South Korea in 1982. Special Researcher of Tokyo University of Foreign Studies (TUFS) since 2016. Worked as Research Assistant at TUFS Institute of International Relations (TUFS-IIR) from 2011 to 2013. Awarded Master's Degree from TUFS (International Studies) in 2011, currently PhD candidate at TUFS. His research focuses on social business and NPOs in Japanese society, public space in East Asia.

"Is Refugee Acceptance in Japan Possible? – Considering Japanese Modern Society"

Abstract:

The refugee crisis and acceptance is becoming an important issue not only in Europe but also in East Asia. Japan has been pointed out for the low number of refugees it accepted in the global society. There are problems with the strict criteria of refugee recognition, and insufficient safety net from risks for applicants and the people waiting for reexamination. In recent years, however, the Japanese government seems to be getting closer towards protection of refugees' human rights such as implementation of resettlement, consideration of a broader understanding of the 'persecution' concept, permitting status of residence by 'humanitarian consideration' and expansion of social security.

On the other hand, this issue is related to the concept of 'fundamental human rights', which is made up of 'free individuals' of Western modernity. However, it is thought that Japanese society has organizations with several sociological characters as her basic social units, and every person is included in some kind of organization under the state of Japan. This phenomenon is observed even in current 'modernized' Japanese society, especially 'Public / Private' concepts greatly modified in the Japanese context. This presentation provides a sociological and anthropological consideration of Japanese society, introducing some samples of both domestic and alien groups appearing in it. It tries to provide preliminary issues which should be considered before discussing refugee acceptance and coexistence with aliens, including refugees, in Japanese society.



Prof. Christian Kaunert

Institute for European Studies, Vrije Universiteit Brussel, Belgium

Prof. Dr. Christian Kaunert is Academic Director and Full Professor of European Politics at the Institute for European Studies, Vrije Universiteit Brussel. Previously, he served as a Full Professor of International Politics, Head of Discipline in Politics, University of Dundee and Director, European Institute for Security and Justice, Jean Monnet Centre for Excellence, University of Dundee. He was previously Marie Curie Senior Research Fellow at the European University Institute Florence, and Senior Lecturer in EU Politics & International Relations, University of Salford. Prof. Kaunert holds a PhD in International Politics & an MSc in European Politics from the University of Wales Aberystwyth, a BA (Hons) in European Business from Dublin City University, ESB Reutlingen and a BA (Hons) Open University. His research has a clear focus on the Global Security role of the EU, especially in the area of EU Justice and Home Affairs.

Dr. Sarah Leonard

Vesalius College, Vrije Universiteit Brussel, Belgium



Prof. Dr. Sarah Léonard is Associate Dean for Research and Assistant Professor in International Affairs at Vesalius College, Vrije Universiteit Brussel. Prior to joining, she was a Senior Lecturer in Politics, University of Dundee, Lecturer in International Security at the University of Salford and Marie Curie Research Fellow at the Centre for European Studies of Sciences Po, Paris (France). She received her PhD in International Politics from the University of Wales, Aberystwyth. In 2010, she was a Visiting Research Fellow at the Institut Barcelona d'Estudis Internacionals (IBEI, Spain), and in 2015, a Visiting Research Fellow at the United Nations University (UNU-GCM) in Barcelona (Spain). She was Editor of the Journal of Contemporary European Research. She was also the coordinator of the Jean Monnet PhD Summer School on Security and Justice in Europe.

"Refugees, Security and the European Union"

Abstract (Prof. Kaunert and Dr. Leonard):

The main aim of this paper is to analyse the extent and the modalities of the securitization of asylum-seekers and refugees in the European Union (EU). There is a commonly held view in the existing literature that migrants and asylum-seekers have been securitized in the EU, that is, have been socially constructed as security threats. This paper puts forward a more nuanced argument by analytically distinguishing the asylum policy of the EU from its policies on migrants and border controls on the basis of the literature on 'venue-shopping' and policy venues. It also makes a distinction between the EU asylum policy and the EU's policy towards asylum-seekers and refugees.

The paper argues that the development of the EU asylum policy, far from 'securitizing' asylum-seekers and refugees, has actually led to the strengthening and codification of several rights for these two categories of persons. However, so continues the argument, the securitization of irregular migration had led to a significant strengthening of border controls at the EU external borders, which, in turn, has made it more difficult for asylum-seekers and refugees to access the protection granted by asylum systems in the EU. Thus, security concerns have had mainly an indirect impact.



Prof. Kazunari Sakai

Graduate School of Intercultural Studies, Kobe University, Japan

Professor at the Graduate School of Intercultural Studies and Vice Director of the Center for International Education, Kobe University, Japan. Awarded MA from Tokyo University of Foreign Studies in 1994 and PhD from Kobe University in 2007. After working for the Ministry of Education of Japan and Tokyo Institute of Technology, he joined Kobe University as an academic member. His research focuses on the EU's external relations with neighbouring countries, migration issues across the Mediterranean Sea, and global governance related to migration.

"Migration and Governance"

Abstract:

Tragedies and troubles through migration are serious matters in the contemporary world and it is obvious that we have to address this important issue as we see the grave crisis in the Mediterranean Sea, where a huge number of refugees seek for somewhere to survive inside the EU at the risk of their lives. The EU has started harmonizing migration policies among member states since the mid-1990s, and tried to build an acceptance regime for immigrants from non-European countries; however, the Arab Spring since December 2010 exposed serious problems to be solved in Europe. We may say that the regional governance elaborated by the EU has found an insolvable dilemma between freedom and security through this crisis. I will first discuss the EU's treatments for recent migration problems and function and dysfunction of the regional governance of people's movement beyond borders, taking into account the importance of national governance and global governance.

Dr. Christof Roos

Institute for European Studies, Vrije Universiteit Brussel, Belgium



Christof Roos worked as research associate at University of Bremen (2007-2014) where he received his PhD in 2012. At Bremen International Graduate School for Social Sciences and the Collaborative Research Centre "Transformations of the State" he researched EU integration in Justice and Home Affairs. Currently he is Research Professor at the Institute for European Studies, VUB. His focus is on EU immigration politics as well as single market issues such as freedom of movement, Schengen cooperation, and the common European asylum system. Outside of academia Christof Roos worked for the European Commission's DG Joint Research Centre in Ispra (Italy) and as a policy advisor in the European Affairs Department of the city of Berlin.

Session 4

14:30 - 18:00

Beyond Standard Model at LHC and Neutrino experiments

Chair: Prof. Hisaya Kurashige, Kobe University, Japan

Speaker: Prof. Laura Lopez-Honorez, Vrije Universiteit Brussel, Belgium
Dr. Takatomi Yano, Kobe University, Japan
Dr. Krijn De Vries, Vrije Universiteit Brussel, Belgium
Dr. Yoshihito Gando, Tohoku University, Japan
Prof. Alberto Mariotti, Vrije Universiteit Brussel, Belgium
Dr. Junpei Maeda, Kobe University, Japan
Prof. Freya Blekman, Vrije Universiteit Brussel, Belgium

Discussant: Dr. Kentarou Mawatari, LPSC Grenoble, France

Session 4

Particle physics studies the nature of the elementary particles that constitute our universe and the fundamental forces between them. The currently dominant theory explaining these fundamental particles, along with their dynamics, is called the Standard Model. According to the Standard Model, 6 types of quarks and 6 types of leptons constitute matter, 3 types of forces (electromagnetic, weak and strong forces) can be described by mediating 5 types of gauge bosons, and the Higgs boson, which was discovered in 2012 at LHC experiments, gives mass to each elementary particle. Most phenomena in the microscopic world can be explained by the Standard Model.

Some observations, however, indicate that the Standard Model is not perfect. The nature of neutrino mass and oscillation, which was the research topic of the 2015 Nobel Prize in Physics, is one of the 'unsolved' questions in particle physics. Many new models beyond the Standard Model have been proposed by theorists and many experiments struggle to identify markers in order to choose the 'correct' model among them.

In this session, we focused on two topics: LHC and Neutrino experiments. **Doctor Takatomi Yano** (Kobe University) reported on the Super Kamiokande in Japan, which observes neutrinos from the sun, air showers in the atmosphere, and the proton accelerator at J-PARC in Ibaraki used to study neutrino oscillation. **Doctor Yoshihito Gando** (Tohoku University) reported on KamLAND-Zen in Japan, which searches for 'neutrino-less' double beta decays of Xenon to study the nature of neutrino mass. **Doctor Krijn De Vries** (VUB) reported on IceCube at the South-Pole, which observes very high energy neutrinos from outside of our galaxy.

The LHC (Large Hadron Collider) of CERN in Geneva, Switzerland is the accelerator with the highest energy in the world. ATLAS and CMS are experiments at LHC and study interactions of proton-proton collisions to discover new particles, such as Super-Symmetric partners which are candidates of dark matter in our universe. **Doctor Junpei Maeda** (Kobe University) reported on ATLAS and **Professor Freya Blekman** (VUB) reported on CMS. **Professor Alberto Mariotti** (VUB) discussed a new model of Super-Symmetries, which can explain the current observations at LHC. **Professor Laura Lopez Honorez** (VUB) discussed a new experiment, which may observe evidence of dark matter during the early universe.

We discussed the possibility for collaboration between Kobe University and VUB. As described above, we are counterparts in particle physics; each group carries out different experiments but attacks the same topics to explore phenomena beyond the Standard Model.

Prof. Hisaya Kurashige Chair

Organization of Advanced Science and Technology,
Kobe University, Japan



Prof. Laura Lopez-Honorez

Department of Physics, Vrije Universiteit Brussel, Belgium

Junior research professor at Vrije Universiteit Brussel (VUB), Belgium.
Awarded PhD from Universite Libre de Bruxelles (ULB), Belgium in 2007.
After working in Madrid, ULB and Heidelberg as a PD, joined VUB as a research professor in 2012.
Her research focuses on BSM physics, especially dark matter.

"Dark matter physics"

Abstract:

Dark matter (DM) annihilations into charged particles change the thermal history of the Universe and, as a consequence, affect the 21cm signal. In my talk I will discuss how predicting the effect of DM strongly relies on the modeling of annihilations inside halos. Given current uncertainties on the description of the astrophysical processes driving the epochs of reionization, X-ray heating and Lyman- α pumping, we found in a recent work that disentangling DM signatures from purely astrophysical effects, related to early-time star formation processes or late-time galaxy X-ray emissions, will be a challenging task. We have concluded that only annihilations of DM particles with masses of ~ 100 MeV could leave an unambiguous imprint on the 21cm signal and, in particular, on the 21cm power spectrum. Additional measurements of the 21cm signal at different cosmic epochs should help to break the strong parameter degeneracies between DM annihilations and astrophysical effects in order to undoubtedly single out a DM imprint for masses different from ~ 100 MeV.

Dr. Takatomi Yano

Graduate School of Science, Kobe University, Japan



Specially appointed assistant professor at Department of Physics, Kobe University, Japan. Awarded MCs from Osaka University, Japan and PhD from Kobe University, Japan in 2007 and 2011, respectively. After working for the Super-Kamiokande experiment at Okayama University as a specially appointed assistant professor, joined Kobe University as an academic member for Hyper-Kamiokande project. His research focuses on neutrino physics in MeV energy region, such as solar and supernova neutrinos.

“Neutrino physics at Super/Hyper-Kamiokande”

Abstract:

The very lightweight neutral elementary particle, neutrino, is quite an interesting existence in various scientific fields, i.e. particle physics and astrophysics.

Though it was originally regarded as massless in the standard model, several neutrino oscillation experiments proved the existence of their mass. Super-Kamiokande (SK), the world's largest water Cherenkov detector in Japan, is one of the experiments which discovered the neutrino oscillation. Recently it also provided a noticeable indication of neutrino CP violation with the accelerator neutrino beam (T2K experiment). SK is also famous for the detection of the neutrinos from supernovae. The neutrino is one of the two possible probes for the core of supernovae, because none of the other particles can pass through the high-density structure of supernovae with the information, except for gravitational waves. The study of supernovae with neutrinos will provide significant knowledge for the heavy nuclei and the history of our universe.

In this presentation, I will show the history and the recent physics results of Super-Kamiokande. I will also introduce a successor project of SK, Hyper-Kamiokande (HK) and its physics potential. Both of the experiments will play a remarkable role in the future of neutrino physics.



Dr. Krijn De Vries

Department of Physics, Vrije Universiteit Brussel, Belgium

Research fellow at Vrije Universiteit Brussel (VUB), Belgium.

Awarded PhD from the University of Groningen, the Netherlands in 2012.

After obtaining the PhD in Groningen, joined VUB as a research assistant.

His research focuses on astroparticle physics using the IceCube as well as future high-energy neutrino detectors.

“IceCube overview”

Abstract:

An overview of the IceCube neutrino telescope is presented. IceCube is a cubic kilometer in-ice Cherenkov detector built to detect high-energy cosmic neutrinos interacting in its vicinity. Recently IceCube discovered the high-energy cosmic neutrino flux opening the window to neutrino astronomy. Even though IceCube discovered cosmic neutrinos, their origin is still unknown. We discuss the implications of the IceCube results for possible neutrino sources and their link to the ultra-high-energy cosmic ray flux and dark matter. Along with these results, we also discuss future plans for the IceCube-Gen2 facility and several of its physics goals.

Dr. Yoshihito Gando

Research Center for Neutrino Science, Tohoku University, Japan



Assistant professor at Research Center for Neutrino Science (RCNS), Tohoku University, Japan.

Awarded MSc from Tohoku University, Japan and received a Doctorate of Science from Tohoku University in 2004.

After working for RCNS of Tohoku University as postdoctoral fellow and research associate, joined RCNS Tohoku University as an academic member. His research focuses on neutrino sciences.

“KamLAND-Zen”

Abstract:

Neutrinoless double beta decay search is a direct investigation for majorana neutrinos and lepton number violation. If the neutrino is a majorana particle, unnaturally light neutrino mass is explained and GUT scale physics is indicated through the see-saw mechanism. In the cosmology, the majorana property can be a proof of the matter dominant universe by leptogenesis theory.

KamLAND-Zen is one of the highest sensitivity neutrinoless double beta decay search experiments with Xe-136 based on the KamLAND (Kamioka Liquid Scintillator Antineutrino Detector). KamLAND-Zen 400 as the first phase of KamLAND-Zen project started in 2011 and ended in 2015.

We present the latest and the final results for the KamLAND-Zen 400 project. We also present the current status of the next phase (KamLAND-Zen 800), improvements from the last projects, and future plans.



Prof. Alberto Mariotti

Department of Physics, Vrije Universiteit Brussel, Belgium

Junior professor at Vrije Universiteit Brussel (VUB), Belgium.
Awarded PhD from Milano-Bicocca University, Italy in 2007.
After working in Saclay, VUB and Durham as a PD, joined VUB as an academic member in 2016.
His research focuses on BSM physics in the theoretical and phenomenological point of views.

“Beyond-Standard-Model physics at the LHC”

Abstract:

I will review the status of BSM physics after the new results of the LHC, focusing on SUSY scenarios. I will show the current main challenges faced by standard SUSY models and I will discuss unconventional realizations of SUSY, their advantages and their main phenomenological signatures.

Dr. Junpei Maeda

Graduate School of Science, Kobe University, Japan



Special Appointment Assistant Professor at Graduate School of Science, Kobe University, Japan. Awarded MSc and PhD from Tokyo Institute of Technology, Japan in 2006 and 2009, respectively. After working for the Double Chooz reactor neutrino experiment at Tokyo Metropolitan University as a JSPS research fellow, joined Kobe University as an academic member, and the ATLAS collaboration at LHC, CERN. Currently works on the operation and upgrades of the ATLAS Level-1 muon trigger system. His research also focuses on new physics searches by top-quark resonance.

“Exotic physics searches in the ATLAS experiment”

Abstract:

The LHC is running on Run-2 since 2015 at a centre of mass energy of 13 TeV, the ATLAS detector has taken data efficiently, and the integrated luminosity is achieving approximately 30 fb⁻¹. The new energy opens a large window of searches for particle physics beyond the Standard Model. In this talk, I will present the current status of the ATLAS experiment, then recent results on exotic searches for resonance decaying vector bosons or fermions, of which the excess directly indicates the new phenomena.



Prof. Freya Blekman

Department of Physics, Vrije Universiteit Brussel, Belgium

Professor at Vrije Universiteit Brussel (VUB), Belgium.
Awarded PhD from University of Amsterdam, Netherlands in 2005.
After working in London and Cornell as a PD, joined VUB as an academic member in 2013.
Her research focuses on top physics as a CMS member.

“CMS overview”

Abstract:

The CMS experiment at CERN is one of the two general purpose experiments at the Large Hadron Collider (LHC). After an upgrade of both the accelerator and parts of the detector, the LHC restarted in 2015 at an increased beam energy providing proton-proton collisions at $\sqrt{s}=13$ TeV. The CMS collaboration uses this data for a varied physics programme, ranging from Heavy Ion physics, diffractive Quantum-Chromodynamics, and Standard Model physics precision measurements including studies of the Standard Model scalar boson, to a very diverse set of searches for new particles predicted by physics beyond the SM. In this presentation I will overview recent results from the CMS physics programme, with a focus on results relevant for the audience of this workshop.

Dr. Kentarou Mawatari

LPSC Grenoble, France

