

# KYOTO UNIVERSITY

## International Courses in Civil Engineering

Undergraduate International Course Program of Civil Engineering

International Course in Management of Civil Infrastructure in the Department of Civil and Earth Resources Engineering

International Course in Urban and Regional Development in the Department of Urban Management



**K. U. PROFILE**

Kyoto University Programs for Future International Leaders

## Past and Present

Kyoto University was founded in 1897, the second of seven imperial universities established in Japan. The first faculty to be established was the College of Science and Engineering, followed by the Colleges of Law, Medicine and Letters, as the university developed into an increasingly comprehensive institution emphasizing on fundamental and applied research. Since its foundation, Kyoto University's academic style has been characterized by academic freedom, self-reliance and dialogue. For over a century, the university has consistently produced world-class researchers in a wide spectrum of fields, including nine Nobel Prize laureates.

At present, Kyoto University has 18 graduate schools, 10 faculties, 14 research institutes and 32 education and research centers and facilities. As of May of 2014, we have approximately 9,200 graduate and 13,600 undergraduate students, 2,800 faculty members and 2,700 administrative staff members. Our student-teacher ratio is one of the best in Japan.

Yoshida Campus, the main campus of Kyoto University, is located near the center of Kyoto city. Its facilities are housed in century-old red brick buildings which stand side-by-side with state-of-the-art laboratories. The other campuses are the Uji campus and the Katsura campus. Uji campus houses the university's natural science and energy research facilities whereas Katsura campus forms a Techno-science Hill with four clusters of buildings.

The Main Library of Kyoto University has continuously expanded its collection since its establishment in 1899.

The total collection of all Kyoto University libraries including faculty and departmental libraries, amounts to 6,800,000 books and 119,000 periodicals – one of the largest collections in Asia. The Main Library's most recent addition is Learning Room 24, a study room open 24 hours on weekdays.



## Nobel Prize Laureates



Hideki Yukawa  
1949 Physics



Shinichiro Tomonaga  
1965 Physics



Kenichi Fukui  
1981 Chemistry



Susumu Tonegawa  
1987 Physiology or Medicine



Ryoji Noyori  
2001 Chemistry



Makoto Kobayashi  
2008 Physics



Toshihide Masukawa  
2008 Physics



Shinya Yamanaka  
2012 Physiology or Medicine



Isamu Akasaki  
2014 Physics

## Fields Medal Winners

Heisuke Hironaka  
1970

Shigefumi Mori  
1990

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Photo: Alexander Mahmoud

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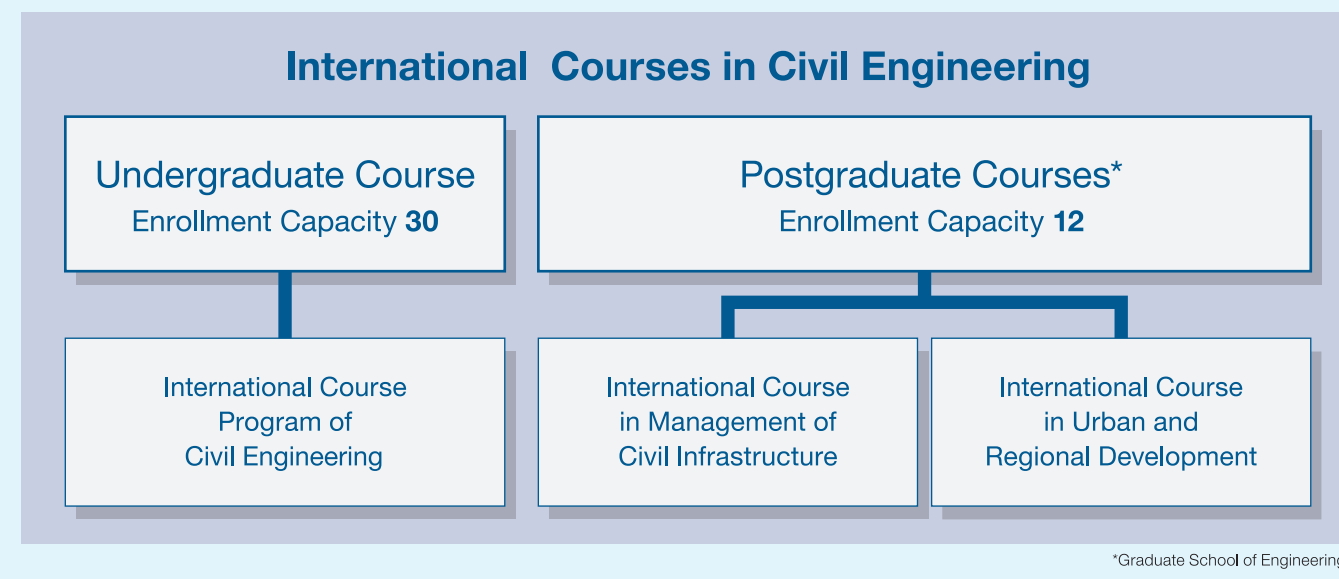
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# International Courses

## International Courses for Under-/Postgraduate Students in Civil Engineering

The School of Global Engineering under the Faculty of Engineering launched the new international courses which aim to cultivate human resources capable of designing and managing civil infrastructures while considering global environmental issues in urban and regional areas, particularly in Asian and African countries. All classes are provided in English.



### Life in Kyoto



Kyoto flourished as the capital city of Japan from 794 to 1868 A.D., from the beginning of the Heian aristocracy to the end of the Tokugawa Shogunate or Edo period. To this day, it remains a vibrant artistic capital - a treasure trove of cultural assets and traditions kept alive through its people. Built upon its foundation of skilled artisans and craftsmen - learned in the aesthetics developed over a millennium - modern day Kyoto has also witnessed the birth of frontier technologies and subsequent global-scale successes of such names as Shimadzu, Kyocera and Nintendo. This is a city where the best of both the old and new can be found. Individuals studying and working in Kyoto enjoy the opportunity to discover this city just steps away from their academic interests.

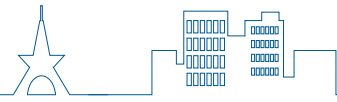


### Students' Voice – Undergraduate Program

<p>The reason why I came to Kyoto University is because it is one of the top universities in the whole world. Specifically, Japan suffers from frequent natural disasters such as earthquakes, tsunamis, typhoons, and flooding. This situation makes Japan stronger in the relevant scientific and engineering fields.</p>  <p><b>Kim Daeyoon</b> Seoul, South Korea</p>	<p>When I first met my classmates from different countries such as Japan, China, Indonesia and Korea, I learned that although we have different cultural backgrounds and use different languages, it doesn't really matter.</p>  <p><b>Zhang Tengyue</b> Harbin, China</p>	<p>The International Course is a well-coordinated and educative program, having skillful and encouraging teachers, who enable us to study in English. Living in Japan is a good experience in terms of cultural exchange, being able to learn a foreign language, and also making new friends.</p>  <p><b>Michael Mbithi</b> Kapenguria, Kenya</p>	<p>November Festival, Kyoto University's campus festival, has really made me become aware of how many after class activities we have in this university and that school life is not only about study. There is a life besides books.</p>  <p><b>Sui Ruoqi</b> Chengdu, China</p>	<p>The scenery, atmosphere, friendship; everything is very comfortable here. If you are a Muslim who wants to study in Japan, please do not be afraid to come. Being a Muslim is not as difficult as I thought before as there is a place for prayer, to buy food, etc.</p>  <p><b>Wasi Bagaspati</b> Serang, Indonesia</p>	<p>I have benefited a lot since I arrived here, improving my language skill is an example. I have learned many interesting and useful things in all these classes I'm currently taking, and I have become more passionate about my major, Global Engineering.</p>  <p><b>Zhu Feng</b> Shanghai, China</p>
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# Civil Engineering

## Overview



### What's Civil Engineering?

Civil engineers play important roles in improving the quality of life in human society. The technology and knowledge in civil engineering have contributed to hazard mitigation, improvement of infrastructure and creation of safer and pleasant communal spaces. In general, Civil Engineering consists of four main sub-disciplines;

#### Structural Engineering

Structural engineering shapes the basic structures of the world we live in, such as roadway and railway bridges. It contributes to design, construction and maintenance of the structures. The prevention and mitigation of natural disasters are also important missions for structural engineers. Developing sustainable infrastructures combined with environmental aspects is our next challenge.

#### Hydraulics

Hydraulics deals with the study of fluid motion, and the interaction of fluid with

other bodies. In a bigger scale, hydraulics is vital in understanding the flow of rivers, lakes and the oceans. The knowledge of hydraulics is indispensable in water-system management, flood hazard mitigation, as well as the maintenance of rivers, lakes and oceans eco-system in local and global environmental scale.

#### Geomechanics

Geomechanics studies the engineering behavior of earth materials such as soils and rocks, playing a crucial role in all civil engineering projects since most constructions take place on or in the ground. The principles of soil and rock

mechanics are used to investigate the physical-chemical conditions of the subsurface, the dynamic behavior of soils as well as the stability of slopes and soil deposits, to design, construct and maintain earthworks and structure foundations.

#### Urban planning

Urban Planning and Management aims to promote knowledge to create safe, comfortable and sustainable cities. Therefore common research themes of urban planning laboratories are to develop comprehensive and practical methodologies for infrastructure design and management. Such methodologies should consider a

potential broad range of impacts, such as economic, societal as well as environmental ones. These methodologies are then used to assess potential future scenarios and to develop policy suggestions. Given the complexity of our societies and wide ranging impacts of urban planning policies, students in urban planning are encouraged to develop a broad range of skills and knowledge, including subjects such as operations research and economy as well as sociology, psychology and philosophy.

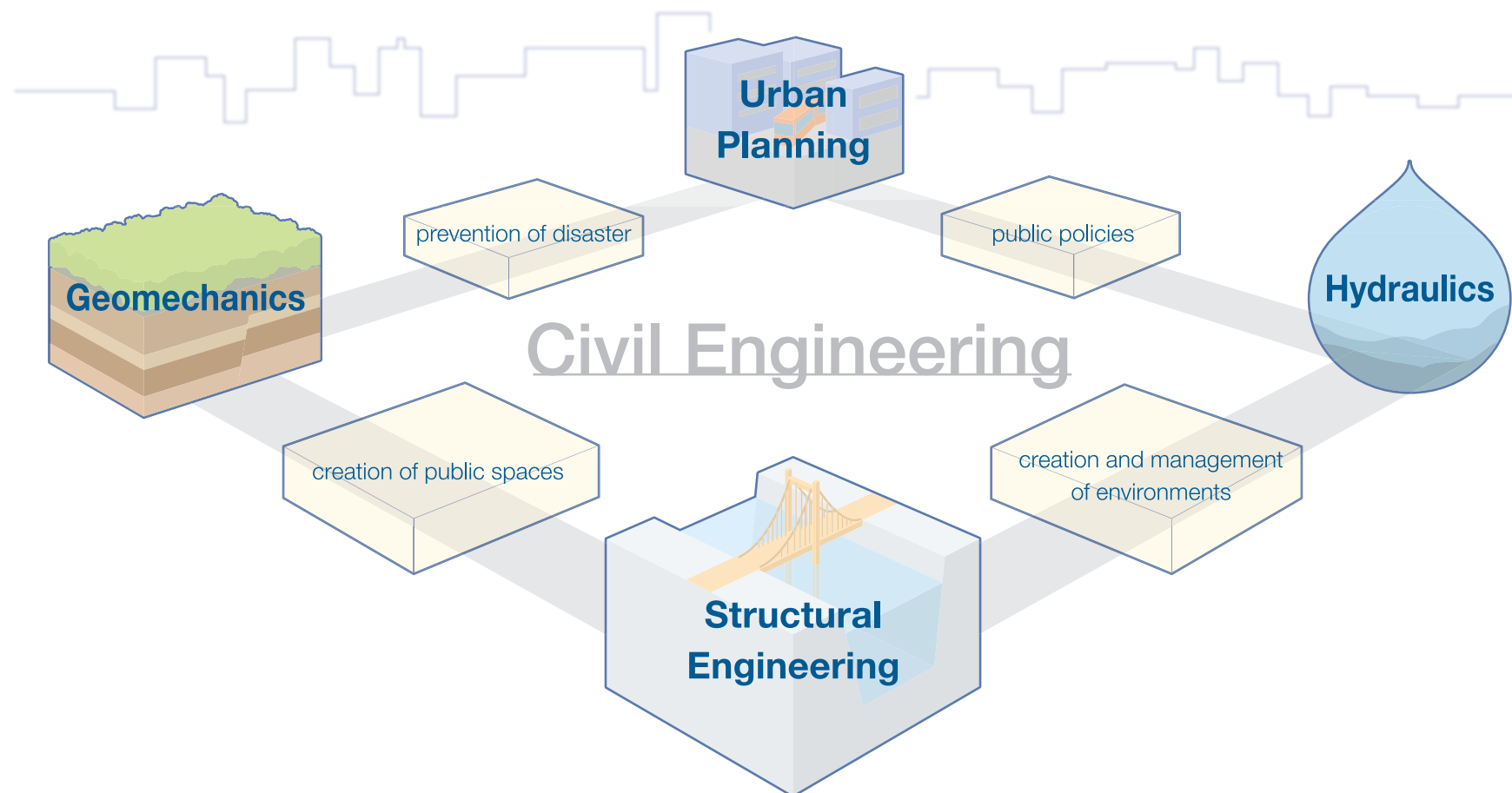
## Undergraduate International Course Program of Civil Engineering

The undergraduate international course program is a 4-year program leading to a Bachelor of Engineering degree. In the first two years, students are required to take classes in fundamental mathematics, physics, as well as liberal arts subjects. Japanese language and scientific English classes are also available. Specialized civil engineering classes begin from the second year, comprising classes in environmental, earth resources and energy science engineering. Final year students will undertake research for their bachelor thesis at his/her designated laboratory. The thesis must be presented and examined in February of the final year, in order to graduate in March.

<http://www.s-ge.t.kyoto-u.ac.jp/int/en>

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#### Japan's civil engineering milestones

Clockwise from top left; Kurobedam (height 186m), Shinkansen (300km/h), Seikan tunnel (length 53.85km), Akashi bridge (length 391m)

### Job Opportunities after Graduation

Our curriculum allows graduates to obtain technical, advisory or managerial positions. Graduates are expected to pursue a career in

International Institutions

Government Institutions

Multinational Cooperation

Research Institutions

Leading Japanese Companies, e.g. construction companies

# Civil Engineering

## Postgraduate International Course in Management of Civil Infrastructure in the Department of Civil and Earth Resources Engineering

This Master's program aims to cultivate human resources capable of managing civil infrastructures and addressing environmental issues in various countries, particularly in the developing countries of Asia and Africa. Several issues are in focus, such as; achieving a stable supply of natural resources and harmonize human activities with the global environment; the development of fundamental key technologies that support public infrastructure and energy development; the creation and development of new versatile technologies and design methods concerning the construction, improvement, operation, and maintenance of public infrastructure and disaster mitigation measures, as well as technologies related to the exploration, development, and utilization of the natural environment, natural resources and energy. Such issues are approached by the framework of applied mechanics and computational mechanics with the integration of theoretical and experimental works.

<http://www.ce.t.kyoto-u.ac.jp/mci/en>



## Postgraduate International Course in Urban and Regional Development in the Department of Urban Management

This Master's course aims to make advances in social analysis technology utilizing urban engineering, traffic engineering, and environmental system engineering to analyze human activities in cities. Research is conducted in urban planning and traffic planning to realize safe and sustainable urban systems. Advances in urban infrastructure relating to building foundations and rivers are examined. It also aims to establish methodologies and engineering techniques for the comprehensive management of urban systems, incorporating assessment of the sustainability of cities based on cutting-edge research and an interdisciplinary perspective that embraces the social sciences and humanities. Advanced information communication technology is integrated with social infrastructure technology in order to realize sustainable, safe, and internationally competitive urban systems that can ensure a high quality of life. Lectures and seminar-based subjects are designed for students to independently plan, implement, summarize and present research results from project surveys and company seminars.

<http://www.um.t.kyoto-u.ac.jp/urd/en>



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## Student's Voice – Master's Program



**Name:** Lee Eng Ming  
**Enrolled year:** 2011 April (as a Research Student in Oct, 2010)  
**Hometown:** Kuala Lumpur, Malaysia  
**Course name:** International Course in Management of Civil Infrastructure  
**Laboratory:** Structural Mechanics lab  
**Title of Thesis:** Experimental Study of the Flexural Behavior of GFRP and steel Composite I-Beam  
**University of undergraduate study:** University Technology Malaysia

### What did you study or major in at undergrad level?

I obtained my undergraduate degree in Civil Engineering. From an early age, my favorite pastime is to construct and assemble blocks of LEGO into different objects, buildings and robots. Moreover, I have always been fascinated with buildings, bridges, and any structures that have unique designs such as the Colosseum in Italy and Sagrada Familia in Spain. It is these in particular which attracts me to civil engineering study.



### Why Kyoto University?

The top universities in Japan have more or less the same excellent engineering courses, facilities, state-of-the-art technologies and services for students to grow and learn. In the end, I chose Kyoto University. A tranquil place with many fascinating gardens, temples, shrines, and many world heritage sites; a combination of ancient and modern city; home to so much history and culture, Kyoto has all of them. This is the place where I want to live in. Another reason for choosing Kyoto University is the research field that I am interested in. I am glad that



a prominent professor from such a reputable university is willing to accept me, a foreign student who could not speak a single Japanese word at that time.

### What is a typical day at Kyoto University like?

Studying in a top Japanese university and surrounded by many outstanding minds and talents is a dream come true for me. Every day it is an academically stimulating environment where everyone put in a lot of effort into their research. Despite all the challenging and hectic works in laboratory, students here still are able to find time to enjoy themselves like playing baseball in the nearby field in campus, hanging out with

friends over a game of badminton and basketball in the gym and so on. In any day in campus, I can easily meet many friends coming from different backgrounds and countries. This is also one of the advantages Kyoto University has because it attracts many international students furthering their study or research here.

### Which is your favorite class?

I like all my classes equally. However, I enjoyed most one particular core subject that I took. It is the Exercise on Project Planning. Students can choose to do any project individually or in group as long as it is related to their field of study. For this project, my Japanese labmates and I participated in the annual Japan Steel Bridge Competition 2011. We had a lot of fun spending our time and effort brainstorming and discussing our project.



category, 3rd place in judges' choice-display section and 3rd place in overall performance of the exhibition match.

### What is life in Kyoto like?

Living in Kyoto is not as fast-paced as anyone would think. My friends and I often rent cars and drive to the places we want to visit. Kyoto is also a place with a variety of food. When I was in my first year in Kyoto, my friends and I even researched about the various Ramen (Japanese noodle dish) restaurants to find out their popularity and ranking before trying them out ourselves.

### Where do you live?

I am living in Katsura, a serene small town which is located in the west part of Kyoto city. It is close to Katsura campus where most of the engineering departments can be found here.

### Do you receive any scholarship?

Yes, I obtained the Japanese Government (Monbukagakusho: MEXT) Scholarship. The stipend provided is sufficient for living in Japan.

### What do you want/plan to do after you graduate?

Currently, I am going through the process of job hunting in civil construction sector in Japan.

### Any message for prospective applicants for last?

I have a Japanese student tutor assigned for me in order to assist me to complete certain initial formalities, filling in application forms and help me to adapt to life in Japan. In addition, Kyoto University provides a wide range of Japanese language programs for international students. Although Japanese language proficiency is not required for my study and research, I enjoy taking the classes and learning the language along with many other foreigners. The ability to use Japanese language in daily life is an added advantage to carry out activities such as communicating with labmates, travel and gain more Japanese friends. To all prospective applicants, I hope you will consider Kyoto University for the above mentioned things.



# Maps



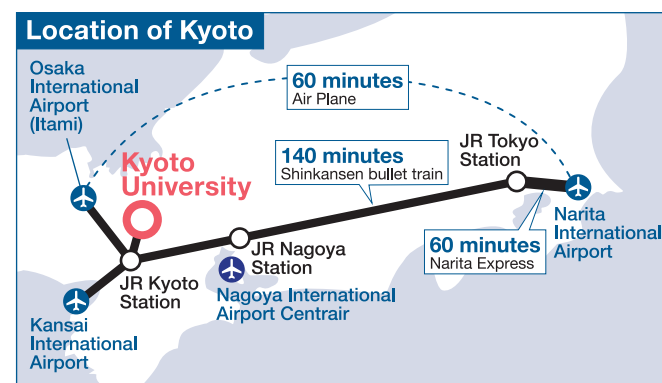
Yoshida Campus



Katsura Campus



Uji Campus



## Mission Statement

Kyoto University states its mission to sustain and develop its historical commitment to academic freedom and to pursue harmonious coexistence within human and ecological community on this planet.

### Research

Kyoto University will generate world-class knowledge through freedom and autonomy in research that conforms with high ethical standards.

As a university that comprehends many graduate schools, faculties, research institutes and centres, Kyoto University will strive for diverse development in pure and applied research in the humanities, sciences and technology, while seeking to integrate these various perspectives.

### Education

Within its broad and varied educational structure, Kyoto University will transmit high-quality knowledge and promote independent and interactive learning.

Kyoto University will educate outstanding and humane researchers and specialists, who will contribute responsibly to the world's human and ecological community.

### Relationship with society

As a university committed to a broad social engagement, Kyoto University will encourage cooperation with local and national society, and will disseminate knowledge informed by the ideals of freedom and peaceful coexistence.

As an international institution, Kyoto University will promote foreign academic exchange and thereby strive to contribute to the well-being of the world.

### Administration

In order to enhance the free development of learning, Kyoto University will pay due respect to the administrative independence of each of its component institutions, while promoting cooperation among them.

Kyoto University will conduct its administration with regard for the environment and respect for human rights and will be accountable to society at large.



It is the duty of universities to contribute to the development of a stable global society by seeking solutions to the problems faced by modern society, such as energy and environmental issues, poverty, and issues related to urbanization.

K. U. PROFILE, Kyoto University's educational initiative under the Japanese government's Global 30 (G30) Project, aims to work toward these goals by gathering talented students from around the globe and providing them with the education, research experience and global perspective needed to help them become international leaders in their fields.

For further information about K. U. PROFILE, please visit the following website:

**K.U.PROFILE (Kyoto University Programs for Future International Leaders)**

<http://www.opir.kyoto-u.ac.jp/kuprofile/e/>



## Inquiries

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### - Faculty of Engineering, Kyoto University -

**Undergraduate International Course Program of Civil Engineering**

<http://www.s-ge.t.kyoto-u.ac.jp/int/en>

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### - Graduate School of Engineering, Kyoto University -

**International Course in Management of Civil Infrastructure in the Department of Civil and Earth Resources Engineering**

<http://www.ce.t.kyoto-u.ac.jp/mci/en>

**International Course in Urban and Regional Development in the Department of Urban Management**

<http://www.um.t.kyoto-u.ac.jp/urd/en>

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