



AC21 Newsletter

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University Collaboration to Reshape the Future

H. Russel Botman, President, Stellenbosch University



Delegates to the 7th International Forum (IF) of the Academic Consortium for the 21st Century

(AC21), to be hosted by Stellenbosch University (SU) from April 13–16, 2014, will be heading to Africa at an exciting time.

The continent is currently experiencing an upswing following strong economic growth and political progress over the past decade, and higher education is poised to play a key role in further accelerating this momentum.

Not only must our universities deliver the next generation of academics and professionals that Africa needs to meet the demands of our era, they must also help find sustainable solutions to some of the biggest challenges facing the continent's people.

Across Africa, the realisation is growing that, in order to achieve these goals, universities will have to strengthen both their engagement with society and their collaboration with one another and the rest of the higher-education sector across the globe.

AC21 therefore has its work cut out in Africa: to join us on the continent in realising our vision of human development and dignity for all, and of ensuring that peace, democracy and environmental sustainability are safeguarded everywhere.

If remaking the future is what the theme of this year's AC21-IF in Stellenbosch – "Science for Society: Higher Education as Builder of Hope" – is all about, the meeting could not have come at a more appropriate time. Cape Town has been designated World Design Capital for 2014, and there is a real buzz in the city and surrounding areas as the spotlight falls on innovative ways of improving people's lives.

In its broadest sense, design is not about bespoke

products and spaces for the privileged, but about shaping systems and institutions to meet the changing needs of society as a whole. An example is the Ukwanda Rural Clinical School (RCS) of SU's Faculty of Medicine and Health Sciences. The first initiative of its kind in South Africa, it represents a break with the model of training medical doctors at academic hospitals in urban areas.

With its hub in the town of Worcester, the Ukwanda RCS enables us to address the critical shortage of doctors in South Africa, especially in rural areas. It produces graduates who are not only better equipped to deal with the needs of underserved communities, but who are also more likely to go and work in rural areas after qualifying.

AC21-IF delegates will have the opportunity to visit the Ukwanda RCS, and we are looking forward to welcoming everyone coming to Stellenbosch for this meeting.

** Professor Botman is Rector and Vice-Chancellor of Stellenbosch University. He serves as rotating President of AC21, and a Vice-President of the Association of African Universities.*



Spier Conference Centre



Ukwanda Rural Clinic

Report on the Eleventh AC21 Steering Committee Meeting & Sixth AC21 General Assembly

Yoshihito Watanabe

Trustee and Vice-President, Nagoya University

Director, AC21 General Secretariat

On October 16 (Wed) and October 17 (Thur) 2013, the Eleventh AC21 Steering Committee Meeting and Sixth AC21 General Assembly were held at Tongji University in China. These meetings took place on the first and second days of the Fifth AC21 Student World Forum, which was held at the same time on the same campus.

Representatives (vice-presidents/international affairs staff) from 16 of the 19 AC21 member universities took part in the Steering Committee Meetings: seven from Steering Committee member universities, and nine attending as observers.

The following agenda were raised at the Steering Committee Meeting: 1) Report on the AC21 General Secretariat's activities for the year; 2) Implementation report on the 2012 AC21 International Forum; 3) Implementation report on the 2013 AC21 International Graduate Summer School; 4) Number of projects selected for the AC21 Special Project Fund; 5) Timing for holding of events aimed at students; 6) Plans for future AC21 events.

1) In the report on the AC21 General Secretariat's activities for the year, first a report was made on introductions to AC21 activities given at international academic conferences such as APAIE (Asia-Pacific Association for International Education) and NAFSA (Association of International Educators). Next, reports were given on the projects selected for the AC21 Special Project Fund, which offers financial support for joint research between multiple member universities; visits to member universities; issuance of the AC21 Newsletters; 2012 settlement of accounts; and financial plans for 2013.

2) A number of reports were given in the Implementation report on the 2012 AC21 International Forum: (1) The Forum was held during the 10th anniversary year of AC21's establishment, and provided a good opportunity to review AC21's activities so far, as well as to have an exchange of opinions on its future activities; (2) A President's Club Session was held for the top levels of each member university as a new experiment; (3) A proposal was made to promote education and research collaboration by having a number of member universities form sub-groups with specific themes; the proposal was accepted, and sub-groups were formed.

3) An implementation report was given on the new project "AC21 International Graduate Summer School," which received high evaluation from member universities; it was agreed that, while the actual form of the event will be entrusted to the host universities, future Graduate Schools will be part of AC21's activities.

4) The proposal made at the General Assembly regarding the number of projects selected for the AC21 Special Project Fund met with agreement: the policy of selecting a maximum of two projects per year will not change, and, to promote the exchange of researchers between member universities, the amount of financial support per project will be raised from 5,000 USD to 10,000 USD from 2014 onward.

5) An exchange of opinion was held on the timing best calculated to allow more students to attend events; the preferred timing of each member university was considered, and a proposal was made at the General Assembly the next day.

6) Several proposals were made for plans for future AC21 activities: (1) The 2015

Student World Forum to be implemented by the University of Strasbourg with the cooperation of the University of Freiburg; (2) Financial support for events aimed at students to be a matching fund between 20,000 and 50,000 USD; the amount of said support to be determined by the Steering Committee members based on the contents of the proposal submitted by the host university; and (3) In future, the "International Forum" aimed at faculty and staff and "events aimed at students (e.g. the Student World Forum and International Graduate School, etc., the details of which will be decided by the host university)" to be held in alternating years. Representatives (presidents/vice presidents/international affairs staff) from 17 of the 19 member universities attended the General Assembly held the following day. In addition to the six above agenda raised at the Steering Committee Meeting, a preparation progress report was given by the Republic of South Africa's Stellenbosch University, the host university of the next International Forum, to be held in April 2014.

Following reports 1) to 3) above, the General Assembly agreed with proposals 4) and 6) submitted at the Steering Committee Meeting. Regarding the timing of events aimed at students raised in agenda 5), it was determined that, because there is no timing convenient for all member universities, the dates of each event will be decided through talks between member universities, and that preparations for the next event aimed at students, to be held in April 2015, are to continue.

In addition, it was agreed at the General Assembly that the 2016 International Forum will be hosted by Technische Universität Chemnitz, and that the event aimed at students to be held in 2017 will be hosted

by Indonesia's Gadjah Mada University. Universities wishing to host the 2018 and 2019 events have also come forward already, and there was a general atmosphere of high motivation toward AC21's activities. Proposals were made based on a number of people from various universities who had been sent to attend events aimed at students: in order to further increase the effectiveness of these events, it was suggested that (1) IT (video conference systems, YouTube, etc.) should be fully utilized; and (2) Workshops

could be held at participating universities before and after events, so that students other than those attending the events can also share in the learning.

Last year, AC21 reached a turning point as it celebrated its 10th anniversary; in order to increase its worth as a consortium, it implemented new projects like the AC21 International Graduate Summer School, and started new initiatives such as the forming of sub-groups to promote education and research exchange between member univer-

sities. Through initiatives like these, information exchange and networking between member universities are growing more and more active. At this Steering Committee Meeting and General Assembly, also, we heard not only proposals for new activities but also ideas for making existing activities still more effective. I hope that we will go on to create an even more attractive consortium together.

AC21 Student World Forum 2013 : Forum Reports

Tongji University Work Team for the AC21 Student World Forum 2013



The Fifth AC21 Student World Forum was held at Tongji University from October 16 to 22, 2013. 36 students from thirteen AC21 member universities attended the Forum. Academic discussion and cultural exchange on the topic of *Sustainable Mobility and the City of the Future* were carried out, and many innovative new ideas were generated. As the sponsor of this Forum, Tongji University selected twelve student representatives from the School of Automobiles, School of Architecture and City Planning, School of Civil Engineering and School of Environmental Sciences and Engineering; 30 volunteers from 80 applicants from various faculties participated. The six sub-themes of this forum were New Concept Automobile, Green Energy Mobility, Green Life Style & Mobility, Public Transport,

Bicycle and Policy and Others. Various activities were held, such as tour visits, discussion and study. Through these activities, the participating students were able to fully express themselves and gained a better understanding of the Forum themes, and also of Tongji University and the city of Shanghai. They visited both the Siping Road Campus and Jiading Campus of Tongji University, Shanghai City Planning Exhibition Hall, Shanghai Museum, Nanxiang Guyi Garden and the West Bank Contemporary Art Show, and experienced the Shanghai Urban Rail Transit System, including magnetic levitation train, bus, subway and ferry.

Four academic lectures during the Forum analyzed the properties of a Sustainable City from the viewpoints of different fields. Academic Zheng Shiling gave a report on "The Legacy of EXPO Shanghai," in which he deeply analyzed the development and opportunities that the EXPO had brought to Shanghai; he also introduced the city planning concepts of the EXPO and discussed the future sustainable development direction of Shanghai based on these concepts. In his presentation, "Transport and Environment," Professor Jiang Dahe dealt with questions regarding the most influential factors on

the environment, and whether the effect of PM2.5 emissions on the environment is as large as imagined. Professor Jiang offered sustainable improvement ideas for a green future by comparing the China haze with the environmental problems of other countries. In "Towards a Cleaner Mobility," Professor Yang Zhigang analyzed the features of China's automobile market and the severe problems in automobile market development. Professor Chen Xiaohong's report was titled "Cleaner Transport: Path and Modes in Shanghai." She introduced transport development modes and features of urbanization in Chinese cities and analyzed the Shanghai Transport System, based on which she proposed four practical approaches in order to realize low-carbon transport. She concluded that we are developing, improving and striving toward the future.

Once the experts' reports had given the participants a better understanding of Shanghai's transport and city development, the Forum moved forward to the climax of the group project reports, which surpassed all expectations. Rather than standard PowerPoint presentations, they were a mixture of debate, sitcom, stage discussion, modeling, videos and many other things.

During this Forum, students from different countries constantly came up with amazing thoughts and ideas, displaying the power of global wisdom. What impressed us most was that several Thai students mentioned the increasing pressure regarding electricity in

Thailand. The government has bought electricity from Laos as well as developing new energy. As early as 1992, they encouraged people to use wind energy, solar energy and even palm oil power. How to optimize the energy structure during economic develop-

ment is a crucial question that needs to be addressed.

Although our time at this event was short, it gave us unforgettable memories. In this sense, we, together with AC21 and all the participants, have never parted.



Themes and New Methods in the 21st Century

Chen Xiaohong, Professor
Tongji University



I was honored to give a lecture to 36 students from the 13 universities of AC21 during the Fifth AC21 Student World Forum (SWF) 2013, held at

Tongji University. Through this lecture, I conclude that what matters is exchanging ideas, not simply feeding them to students; is theme, not content; is method, not form. The theme of the AC21 SWF 2013 was “Sustainable Mobility and the City of the Future.” My topic was “Cleaner transport: Path and Modes.” Taking Shanghai City as an example, I introduced four possible modes of sustainable green transport system construction, including a rail transport system and connection, new-mode bus, LEV and non-motorized transport. I sensed that, although not all the students were majoring in Planning, Transport or Automobiles, they

were sincerely concerned about these issues and engaged in heated discussion on them. I think this is because they regard it as their responsibility to consider and confront these issues. Discussion with students from different countries and regions also roused their motivation to learn and to think.

Therefore, I propose that this kind of lecture be introduced into the formal curriculum system. In the tertiary education period, simply instilling knowledge in the name of teaching will only reduce students’ enthusiasm and power of initiative. Communication among students from different majors and backgrounds should be encouraged in order to stimulate innovation. The curriculum of a sustainable university should focus on the designing of research themes, leading students to pay attention to the future and train themselves to become responsible, accountable and capable. The lecture is still the major

university teaching mode, but we should turn the one-way instilling method into discussions about different opinions, offering more questions instead of a single, definitive answer, which will dramatically improve the teaching effect.

The Fifth AC21 Student World Forum has chosen the theme of the 21st century, and also tried new teaching methods that are suitable for cultivating talented people in the 21st century, letting students from different countries, cultural backgrounds and areas of academic fields get together and discuss around the theme of Sustainable Mobility and the City of the Future.



AC21 Student World Forum 2013 : Student Report ①

Nabila Afif, Department of Architecture, Faculty of Engineering,
Gadjah Mada University



Attending the AC21 Student World Forum in Shanghai this year was one of my most overwhelming experiences of 2013. The theme of the Forum, the

key speakers, the great friends I made from all over the world and the friendly committee were all that I needed to expand my knowledge and broaden my point of view in a very short time.

The theme ‘Sustainable Mobility and the City of the Future,’ and the fact that it was held in Shanghai, China, was a perfect trigger for my interest. My background as third-year architecture student at a leading university in Indonesia, Gadjah Mada University, plus my experience studying at the University of Adelaide, Australia, last semester has shaped my interest in world-wide architecture in an urban context.

Walking around the city as part of the Forum activities, I got a picture of how the strategic position of Shanghai as one of the busiest ports in the world made it possible for the

great numbers of immigrants and foreigners to affect the city’s local culture and architecture style. Later, when we held discussions during the lectures, I formed an idea of how China has adapted those new influences and mixed them together to transform Shanghai into a new modern city.

At the Forum, we discussed the issue in a comprehensive manner. Sustainable mobility in relation to the city must involve strategic transportation networks, clean mass technology, and effective city policies. The discussion resulted in many applicable, rational and fresh ideas, viewed from many aspects and points of view.

The first lecture, “The Legacy of the Shanghai Expo” by Prof. Zheng Shiling, about the general planning, reason, and logic behind the revitalization of the Shanghai riverfront in order to impress the world with the Expo, was very inspiring. Chances for me to hear about a world-scale master plan from the architect first-hand do not come along every day. The last lecture about “Urban Transportation Modes in China,” delivered by Prof. Chen Xiaohong, was also very useful. She talked about the general planning and strategy applied

in Shanghai to serve its rapidly growing population. The key here was the different types of transportation and how they linked at certain points, making the transportation system reliable and accessible. I really hope that this glimpse of a great mindset will help me, as a future architect, to plan cities in Indonesia, as we face similar conditions to China as a populous country.

Aside from the academic aspects, I have to admit that the most memorable part was the friends I made. We had never met before, but in just 10 days we became very close, like one big family! We came from countries with different backgrounds and we had quite large gaps in how we looked at sustainable mobility and how that technology should be applied in our countries. However, all those things brought us even closer together! Everybody was willing to learn, and that created a very positive atmosphere.

The final impression came on one fine day, two months after the Forum ended, when I received a postcard sent from the host of the Forum, Tongji University, Shanghai. Thank you AC21! Thank you Tongji University! That was just a perfect finale; you are the best committee I ever knew!



Indonesian cultural show



My team in the final presentation

AC21 Student World Forum 2013 : Student Report ②

Mark Shigeaki Kuroda, School of Economics and Business Administration,
Nagoya University

From Japan to China, more countries than you can imagine.

In October 2013 I was able to participate as a representative of Nagoya University in the AC21 Student World Forum that took place at Tongji University in Shanghai. The one week-long Forum proved to be an academically and personally gratifying and stimulating experience.

Being my first time in China, I must confess I was unsure about what to expect; just having read and heard about it did not prepare me for what I would find. If I had to summarize China in a word, it would be: contrast. A country characterized by inside/outside, old/new, foreign/national, stubborn/willing, and so on. All these concepts and attitudes coexist, sometimes merging and sometimes opposing, and this is something that makes China seem so distant and unapproachable at times; however, I like to think that this Student World Forum and this group of

students and professors represented a small step toward narrowing the gap between our countries and China. I think that by having discussions while viewing one another as equals and friends, we were able to gaze into different cultures; this allowed a good deal of diverse knowledge and opinions to converge during the Forum, hopefully planting the seeds of better communication, understanding and the desire to work hard for our future.

On a personal level, I must mention that the friendships I forged during this journey showed me once again how vast the world is, and how small I am. I found myself learning, sharing and growing every day. Although we were only together for a week, it felt like we had known one another for the longest time. Of course, this period was not free of difficulties: we faced struggles, realizations of how cultural differences could build unexpectedly high barriers, discoveries of new perspectives and doubt over how to break

away from certain idiosyncrasies in order to adapt. But overall the knowledge, friendships and perspectives we shared made the obstacles we overcame seem nothing more than stepping-stones to self-improvement and the basis of a better understanding between different backgrounds and people. I would like to express my gratitude to the host, Tongji University, and its wonderful volunteers, to the students who got together from all over the world and brought life, knowledge and experience to this forum, and finally to Nagoya University for allowing me to take part in an event which has broadened my horizons and allowed me to grow as a person. I think that this forum allowed all of us participants to grow in unexpected ways; furthermore, by allowing us to represent our universities, cultures and countries, we managed to bond as a tight-knit community of human beings.



AC21 Student World Forum 2013 : Student Report ③

Hiroki Fujiwara, School of Engineering,
 Nagoya University



One of the main reasons I was interested in this program was that I have never been to China, so I wanted to see and experience for myself what it is like. The main theme of this forum, “Sustainable Mobility and the City of the Future,” also attracted me. Since my major is engineering, I wanted to share ideas about new technologies in my country and learn about other countries’ technologies. It turned out to be one of the best weeks of my life: I got a lot of new ideas, communicated with global students, and learned about China.

The main goal of this forum was to give a presentation with your group members about topics related to sustainable mobility. Before the presentation, we listened to lectures by some distinguished Chinese professors. It was a great opportunity to learn about the overall situation in China, for example dealing with air pollution and designing sustainable cities. We also listened to a presentation from a student of Tongji University about the cars of the future. It was really inspiring to find out that students my own age are thinking seriously about future technology and how they can contribute to it. After that, we were divided into several groups and had discussions about our presentation. The time was limited, so it was really hard to come up with a good style for the presentation and work out how to combine our different knowledge. The discussion deepened our understanding of the

theme, and we managed to successfully give our presentation. The great point was that many students asked questions about the presentation and we were able to share thoughts and ideas with one another, which I’m sure would be more difficult if we were only reading books or listening to lectures.

We also had plenty of time to enjoy Shanghai, including its great food and night views. Moreover, we were able to spend time talking with a lot of friends, not only about serious issues but also daily conversation, and I learned about different cultures and the different ways people think. On the fourth day there was a cultural performance, in which students from the same country got together and gave a performance to introduce their culture. It was really fun to see students who are not used to performing trying their best, and made me want to visit their countries someday.

I don’t have enough English to tell you about

all the great things I experienced, but I can definitely say that I learned so much from this forum. The importance of relationships with other countries is always a great issue for every nation, and I believe it is impossible to solve conflicts just by thinking about how your own country will profit. What is really needed is understanding and respect for other countries, which can be gained by actually communicating with one another. This forum was a big step for me and the other participants in better understanding foreign countries. Moreover, young people are the ones who will change the future, so the friendships we created through this forum are really a treasure we can use for a better life and future.

Finally, I would like to thank my university, which is the founder of AC21, for offering me such a great chance, all the participants who inspired me so much, and all the committees who worked hard to organize the wonderful time we had in Shanghai. 謝謝！



AC21 Student World Forum 2013 : Student Report ④

Teuya Ndishiilange Ndjoba, Civil Engineering,
Stellenbosch University

I'm not even sure where to begin describing this amazing experience I was privileged to be a part of. I suppose the best place to start is the beginning. I'm studying at Stellenbosch University in South Africa, but my home country is Namibia, a small country in Southern Africa with a population of roughly two million people. The city I live in, Windhoek, is the capital, with only 322,500 people. So, being blessed with the opportunity to go overseas (for the first time) to Shanghai, a mega-city with a population of 20 million, was incredible and a bit hard to even process and fathom at times. Traveling from Cape Town to Shanghai lasted 14 hours in total. When we got to the airport a very friendly AC21 co-ordinator from Tongji University, our host university, escorted us to the guesthouse. The flight was long and I was tired but I was too excited to succumb to the jet lag, and this helped me manage it quite well.

The theme of the Fifth AC21 World Student Forum was "Sustainable Mobility and the City of the Future." Coming from a civil engineering background it seemed logical that such a forum would only be attended by people in science and engineering. To my pleasant surprise, however, the delegates that attended were from very diverse backgrounds, ranging from Chemistry, Law, Economics and even Sociology. This varied group of individuals made for great

company socially and provided rich interactions with brilliant ideas and insight from different thought processes during our group tasks and discussions. From staying with a roommate from Thailand, to a golf driving range session at Jiading campus, the opportunities for us to step out of our comfort zones, interact and forge lifelong meaningful memories and friendships were plentiful and very well-orchestrated. However, it wasn't only pure friendships that were forged, but also rich contacts that could easily lead to us collaborating on projects within the "green" industry or perhaps even other fields of industry.

What really intrigued me about the cultural experience was the varied Chinese cuisine we were treated to. The food was always colourful, elaborate and oh so plentiful. Even though I wasn't always sure what I was eating, the locals that were part of the forum were happy to explain, which truly enriched the experience. All in all, the programme

was well very organized and we were truly treated like kings and queens.

The technical content of this Forum was really an eye-opener. As a future Professional Civil Engineer I learned a great deal about the sustainable approach and, more than this, the mind-set that I will need to cultivate in all my future work and also in my personal lifestyle. This is very important for all the delegates who attended and, judging by the posts in our Facebook group, the Forum has definitely instilled a high level of consciousness with regards to sustainability and all its encompassing aspects.

Coming from a third-world country with great ambitions of being a leading developing nation, this Forum provided valuable insight into the kind of infrastructural marvels that are possible. This Forum showed me how I can contribute to the universal drive towards sustainable development and share in the vision of how our cities of the future ought to be.



(Author, second from right)



AC21 Student World Forum 2013 : Student Report ⑤

Nicholas Gregg, European Studies with an Economic Focus,
 Technische Universität Chemnitz



(Author, first from right)

On behalf of the Technische Universität Chemnitz, I would first like to thank all of the participants and volunteers of the Fifth AC21 Student World Forum in Shanghai. The volunteers were supportive and helpful and the participants brought fascinating insights to the conference. Aside from this year's topic, the cultural exchange turned out to be not only one of the highlights of the program but also an essential part of finding and defining sustainable solutions. In my opinion, cultural interpretations of sustainability need to be analyzed before even beginning to implement sustainable methods in urban development. How we understand and interpret natural resources and societies often differs from culture to culture. For instance, I learned at this year's AC21 Forum that, due to Japan's geographical isolation as an island nation, an economical interaction with natural resources has always been emphasized and is now considered part of the Japanese culture. In large

aspects, such as the privacy and convenience of car ownership, need to be considered so that an incentive exists for the members of society to use sustainable public transportation.

This leads me to another fundamental aspect of sustainability, which is that "sustainability" is often defined from one point of view. For example, a city equipped with new, electric-powered buses that produce no CO₂ emissions is often considered sustainable. However, we need to start looking at all sides of the story. The bus itself may be environmentally friendly, but that is not enough. What is the bus itself made of? Where does the rubber for the tires come from? Were the materials extracted from the earth in an environmentally-friendly manner? Is it recycled? Where does the seat material come from? Were those materials also produced in sustainable factories? Are fair wages being paid? Was exploitation involved? Only when we can start provid-

ing appropriate answers to these questions will we be able to define something as truly sustainable.

Another important topic at this year's Forum was the role of policy in sustainability. For this case, I would like to refer to the Treaty on European Union's first article under Common Provisions, which emphasizes the "ever closer union among the peoples of Europe." Transportation is clearly one of the key factors in bringing peoples closer together. However, this policy is one that must be updated, in that it needs to emphasize the European Union not only becoming closer but doing so in a sustainable manner as well. Yes, an "even closer" union does mean more cultural exchange and economic freedom, but this needs to be done sustainably. All of today's and the future's policies must include the sustainability aspect.

In conclusion, the Fifth AC21 Student World Forum did a great job in providing a platform for international culture exchange, which is essential in the field of sustainable development. All of the participants came from a variety of different educational backgrounds, which also emphasizes the point that sustainability is not just something for engineers and urban planners, but for politicians, economists, linguists, lawyers, teachers, anthropologists and all educational backgrounds as well.

Thank you again to the AC21 Student World Forum and to all the participants who helped create such wonderful memories.

Announcement of AC21 Student World Forum 2015

**Francis Kern, Vice-President for International Relations,
University of Strasbourg**



Located in the heart of Europe, the University of Strasbourg is the proud heir of a strong humanist tradition dating back to the 16th

century. As a leading European intellectual centre in the 17th century, the university underwent a dual-culture development, alternately located in Germany and in France at the whim of historical events. Divided into three separate institutions in 1968, the University of Strasbourg was reborn when the Louis Pasteur University, the Marc Bloch University and the Robert Schuman University joined forces in 2009: a pioneer of university mergers in France.

The education offered now is very broad, with classes available in almost every subject from Arts, Literature and Languages to Law, Economics, Management, Political and Social Sciences, through the Social Sciences and Humanities, Science and Technology and Healthcare professions.

Academic knowledge is dispensed in thirty-seven teaching and research centres, schools and institutes, ensuring that our 44,000 stu-

dents receive an education that includes the most up-to-date scientific developments.

As a founding member of LERU, the League of European Research Universities, the University of Strasbourg has a global reputation founded on the quality of its research teams operating in every major subject area, nearly half of which are able to boast a partnership with a research organisation. Among its teaching staff are Nobel prize-winning research scientists, including Martin Karplus (Chemistry 2013), Jean-Marie Lehn (Chemistry 2013) and Jules Hoffman (Physiology or Medicine 2011).

European in nature, international by vocation, the University of Strasbourg is active in a large range of partnerships, such as with the European Confederation of the Upper Rhine Universities (or Eucor), a cooperation area that the university has shared since 1989 with the universities of Basel in Switzerland, Freiburg and Karlsruhe in Germany, and Mulhouse-Colmar in France. This cooperation area, located in the heart of Europe in the cross-border area of the Upper Rhine, enables every student registered with any of the member universities to take classes or make use of the facilities in any other member university. Over the 28

years that this close collaboration has been in operation, a number of joint ventures have been put in place, including courses, thematic networks, scientific, educational and administrative cooperation, as well as exchanges of teaching staff.

We have chosen to share our experience of Europe and knowledge of cross-border cooperation while hosting the Student World Forum in 2015. AC21 students will be able, during this event, to take part in a series of conferences on topics as diverse as the work of Congress on local and regional powers of the council of Europe, cross-border cooperation in clusters of companies and research centres, management of cross-border projects, or sustainable development projects within regional authorities and organisations.

The University of Freiburg, also a member of AC21, as well as one of the major Eucor partners of the University of Strasbourg, has agreed to become involved alongside us in the Student World Forum. As part of this event, one entire day will be hosted in Freiburg. We are delighted with this cooperation and honoured to host the two AC21 key events that are the Student World Forum and the Steering Committee Meeting.



Council of Europe, Strasbourg



City of Strasbourg

AC21 Special Project Fund 2013 Report ①

Development of Sono-Process for Green Innovation and the Applications in Environment

XiaoJun Liu, Professor, Nanjing University



Cavitation bubbles can vibrate, grow, shrink and eventually burst under ultrasound irradiation. The process of cavitation will generate extremely high temperatures,

high pressure and jets at the speed of a few hundred meters per second. The chemical reaction due to ultrasonic cavitation is known as a sonochemical reaction. Thus, the degradation of highly environmentally pollutant chemicals such as organic or acidic solutions can occur through sonochemical reaction at room temperature and under normal pressure. Developing high-efficiency sonochemical reaction devices is a necessary step for promoting the further development of applications for sonochemistry.

This cooperative project integrates the advantages of the three participating universities, focusing on how to maximize the efficiency of ultrasonic sonochemical reactions. Nanjing University has good experience in sound field simulation inside ultrasonic reactors. Tongji University has abundant experience in the design and fabrication of high-power ultrasonic transducers. Nagoya University has a unique advantage in the fabrication of sonochemical reactors and experimental methods. The AC21 project is realized through the exchange between researchers, including graduate students from the three

universities. In order to reach the goal of this project, our team carried out the following tasks from April to December, 2013.

Step 1: In June, the groups from Nagoya University and Tongji University visited Nanjing University to participate in seminars. The three groups exchanged ideas and refined the research content of the project. During their stay at Nanjing University they also payed a visit to Prof. JunJie Zhu, the dean of the Graduate School, and cooperation in graduate education between the three universities, such as joint training of doctoral candidates, was also discussed. After this, the group from Nagoya University visited the Institute of Acoustics at Tongji University.

Step 2: According to the research program, the ultrasonic reactor was designed at Nanjing University, while the ultrasonic transducer was created at Tongji University. Next, the ultrasonic reactor was assembled and experiments were carried out at Nagoya University. The optimized ultrasonic reactor has been used to degradate some dye waste water, and the results compared with those generated using other types of ultrasonic

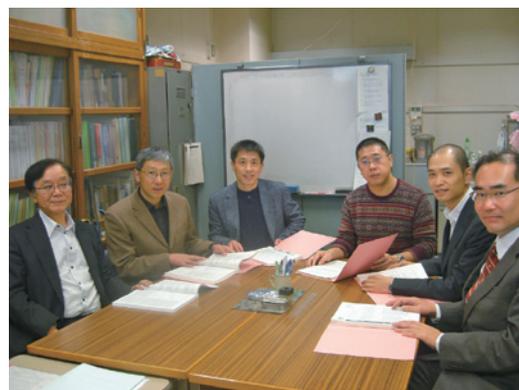
reactors.

Step 3: In November, the groups from Nanjing University and Tongji University visited Nagoya University, where the graduate students participated in experimental work. The team members exchanged ideas and optimized the methods and content of experiments. They also visited Nagoya University's museum for Nobel Prize winners.

In conclusion, our team has largely finished the tasks for its AC21 project and reached the final goals. We have promoted understanding, cooperation and relationships between graduate students in the form of the inter-university visits, participating in seminars, and studying and having discussions together. On this basis, we can strengthen the cooperation in research and graduate education between our three universities. Additionally, this project should promote further understanding between the three universities and form a strong union of research in this field. Finally, we would like to give our special thanks to the AC21 Special Project Fund and Secretariat for their support.



Members from the three universities visited the laboratory at Nanjing University and participated in seminars.



Members from the three universities exchanged their ideas and optimized the methods and content of experiments at Nagoya University.

AC21 Special Project Fund 2013 Report ②

Building a Research Network for Climate Change and China-EU Trade

Maoliang Bu, PhD, Assistant Professor, Nanjing University



In the area of environmental economics in open economy, there has been a long-running debate known as “pollution haven hypothesis (PHH)”.

Its main argument is whether pollution-intensive manufacturing has a tendency to move from developed countries to developing countries, where the environmental regulations are comparatively lax. With increasing attention being paid to the issue of climate change, a new research field, connecting both PHH and climate change, is becoming more and more important. Many exciting questions remain open in this field. For example, both scholars and governments are eager to find out whether stricter carbon emission standards will dampen the competitiveness of trade.

With the generous support of AC21, our four universities, two from China and two from Europe, have established an interdisciplinary team to work together on climate

change and China-EU trade. The research team will provide a platform for future academic exchanges and hopefully contribute to the international collaboration of the four AC21 partner universities. The four AC21 partner universities enrolled in this project are Nanjing University, Huazhong University of Science & Technology, the University of Strasbourg and the University of Freiburg. In addition, three non-AC21 institutions have also joined the project. They are China’s Ministry of Commerce, China’s Ministry of Environmental Protection, and the University of Goettingen in Germany. All these AC21 partners and non-AC21 institutions have contributed greatly to the project.

The summaries of our major activities are listed below:

- (1) Set up an international interdisciplinary team consisting of professors, doctoral students and master’s students from the AC21 partners and non-AC21 institutions.
- (2) Academic visits among cooperating universities and student exchange projects.
- (3) Held a series of seminars on climate change and trade.

- (4) Published co-authored papers at four conferences. The first was the 3rd China Trade Research Group (CTRG) Annual Conference, on May 17–18, 2013 in Hangzhou. The second was the 2013 (2nd) Young Scholars Symposium on International Economics and Business, on Nov. 29 – Dec.1 in Xiamen. The third was the KAS-WTO conference on “Trade and Climate Change,” held by Konrad-Adenauer-Stiftung (KAS) on Nov. 23, 2013, in Shanghai. The fourth was the Conference on Industrial Upgrading and Sustainable Economic Growth in China, held by the Chinese Economics Society of Australia (CESA) on Dec. 12–13 in Guangzhou. Finally, we would like to thank the AC21 General Secretariat and the AC21 Special Project Fund for their generous financial support.



AC21 Special Project Fund 2013 Report ③

SJTU International Forum on Mathematics Held

Yachun Li, Professor and Associate Chair of Department of Mathematics, Shanghai Jiao Tong University

The Special Project Fund Grant from AC21 has assisted in developing a research link between three AC21 partners: Shanghai Jiao Tong University, Jilin University and North Carolina State University. Participants from AC21 partner universities and other non-AC21 institutions will be able to exchange information about the latest advances in their research areas, as well as plan future initiatives based on the contacts made during their cooperation.

Our three universities have worked together to establish an interdisciplinary team, and held an international forum on Mathematics to discuss new directions in our research field.

The SJTU International Forum on Mathematics was held at the University's Department of Mathematics from January 10 to 12, 2014. Eighteen representatives from among the Department's international partners, including the University of Konstanz, the University of Pierre and Marie Curie (Paris XI), the City University of Hong Kong, the Hong Kong University of Science and Technology, the Chinese University of Hong Kong, the University of Wisconsin at Madison, the University of Oxford, Pennsylvania State University, and the University of New South Wales, attended the forum and delivered academic talks,

mainly on PDEs, Numerics, Stochastics and Financial Mathematics, and Applied Mathematics.

A special session on international cooperation, including research collaboration and student exchange, took place on January 10, chaired by Professor Yachun Li, associate chair of the Department. Professor Shi Jin first gave a detailed introduction of the Department of Mathematics, Shanghai Jiao Tong University, especially regarding international issues. After that, Professor Reinhard Racke from the University of Konstanz, Professor Benoit Perthame from Université Paris VI, Professor Tong Yang from the City University of Hong Kong, Professor Bruce Henry from the University of New South Wales, Professor Tiezheng Qian from the Hong Kong University of Science and Technology, and Professor Jun Zou from the Chinese University of Hong Kong introduced their respective math departments as well as their international programs. Discussions also arose from time to time during the session. Finally, on behalf of Shanghai Jiao Tong University, Ms. Liang Guo, vice director of SJTU's Division of International Cooperation and Exchange, expressed her appreciation to the participants, shared concerns of significant interest including the globalization of aca-

ademic professions, the internationalization of curricula, and the boosting and diversifying of SJTU's participation in international cooperation.

This project will help build an international research team, set up long-term cooperative relationship to provide a platform and mechanism for future academic exchanges, involve other international institutions to attract research and project funding from national and international organizations, and promote student exchange for postgraduates and research training in the AC21 network and other institutions.

Lastly, we are pleased to offer our best thanks to the AC21 Special Project Fund and AC21 General Secretariat.

The website of the forum as seen below:



Opening Ceremony of the Forum



Yachun Li's Opening Address

From the General Secretariat

Tohru Uzawa

Professor

Graduate School of Mathematics, Nagoya University

When I heard that Nagoya University was requesting participants for the AC21 International Forum 2014, to be held at Stellenbosch University, I quickly closed my eyes to my crowded calendar and volunteered to go. I was asked to give a presentation and I thought this would be an excellent opportunity to discuss the role of mathematics in industry, as well as in higher education: few doubt the importance of mathematics for the sciences, but there are many who do not realize its importance in industry.

The timing was opportune, since I had also been invited to give a talk at the Irago Conference 2013, organized by Toyohashi University of Technology (TUT). The invitation came while I was discussing novel ways of applying mathematics to issues in materials sciences with Professor Kunihiko Hara of TUT, former director of DENSO Research Laboratories. We decided on the spot that the title should be “Innovations driven by Mathematics and Mathematicians.” The talk, which gave several examples of inventions by mathematicians, was well-received by an audience from diverse backgrounds. If you are interested in knowing more details, please check the conference web page: www.iragoconference.jp

Another serendipitous encounter came when I met Prof. Aloysius G. Helminck of North Carolina State University at an international conference held at Nagoya University. Our discussions started with the mathematical, but we soon discovered that we are both affiliated with the international offices of our respective universities, and that we would both be at the International Forum to be held at Stellenbosch University. We also discovered that we share a common interest in the promotion of mathematics, not simply for

its own beauty, but also as a discipline that has benefitted from interaction with various fields. This is an aspect of mathematics that should be advertised more often. To give an example, differential calculus is the brainchild of two great mathematicians, Newton (1642–1727) and Leibniz (1646–1716). Galileo gave a description of motion in which the velocity changes but the acceleration is constant; in order to do this, he introduced the notion of instantaneous velocity. Newton offered a theory in which acceleration is not necessarily constant, and built his magnificent theory of Newtonian mechanics. Leibniz, one of the greatest universal geniuses, was also a philosopher, and this led him to create suitable notations for infinitesimal calculus, because “with symbols [which] express the exact nature of a thing briefly ... the labor of thought is wonderfully diminished.” Leibniz, by bringing in the Bernoulli brothers and Euler, had great personal influence on the subsequent development of calculus.

I hope this example whets the appetite of participants. I am looking forward to having the opportunity at the International Forum, together with Professor Helminck, to underline the importance of mathematics not only as a subject per se, but also as a very fertile field that interacts with other academic fields and industry. Let me also add that enabling mathematicians to get to know each other is a very effective way of developing fruitful collaboration between various universities. Administrators need not be worried: I understand that Professor Helminck has been instrumental in bringing about various changes at the Department of Mathematics, NCSU and has tremendous experience in bridging gaps and convincing people who are not necessarily mathematicians.

I have explained the events that have led to my taking part in the International Forum. Let me add another, very personal, reason. I ignored my crowded calendar because I wish to see what role higher education can play in furthering the welfare of African people. I want, if I can, to be part of this process. I was a graduate student at Yale University in the late 1980s, and there I met many students from Africa: Sierra Leone, Cote d’Ivoire, Ghana, Nigeria, Senegal, Kenya, Ethiopia, Zambia, and South Africa, to name a few. We had heated discussions on the nature and preconditions of sustainable economic progress, especially in terms of what was happening in Japan.

I learned a lot about Japan through this discussion, and developed a deep respect for the intellect and moral courage of my fellow students. I have been asked by George Hara, the founder of Alliance Forum Foundation (AFF), to help him out with his Public Interest Capitalism Research Division, as a mathematician; the market is a very effective tool to distribute scarce goods and information, but is a double-edged sword and needs to be analyzed more carefully to ensure that it works effectively in improving the welfare of the participants. I believe that this is also a very important consideration for regions like Asia and Africa, because a “market” is such a delicate instrument, and we need to better understand when it functions well, and when it fails. For those wishing to know more about this event, the AFF has a website at:

<http://www.allianceforum.org/english/>

I look forward to meeting our colleagues at Stellenbosch University, and anticipate a most successful Forum.

Upcoming AC21 Activities and Events

2014	April	Seventh AC21 International Forum, Stellenbosch University 12 th Steering Committee Meeting, Stellenbosch University Seventh General Assembly, Stellenbosch University
2015	April	Sixth Student World Forum, The University of Strasbourg and The University of Freiburg 13 th Steering Committee Meeting, The University of Strasbourg
2016	[TBA]	Eighth AC21 International Forum, Technische Universität Chemnitz 14 th Steering Committee Meeting, Technische Universität Chemnitz Eighth General Assembly, Technische Universität Chemnitz
2017	[TBA]	Seventh Student World Forum or Second International Graduate School, Gadjah Mada University

AC21 General Secretariat Activities (2013.9 – 2014.2)

2013	September 19	119 th AC21 Office Meeting
	October 10	120 th AC21 Office Meeting
	October 16	Hold 11 th Steering Committee Meeting
	October 17	Hold Sixth General Assembly
	December 19	121 st AC21 Office Meeting
2014	January 23	122 nd AC21 Office Meeting
	February 20	123 rd AC21 Office Meeting



Academic Consortium 21

AC21 Members

Chulalongkorn University (Thailand)
Gadjah Mada University (Indonesia)
Huazhong University of Science and Technology (China)
Jilin University (China)
Kasetsart University (Thailand)
Nagoya University (Japan)
Nanjing University (China)
National University of Laos (Laos)
North Carolina State University (U.S.A.)
Northeastern University (China)
Peking University (China)
Shanghai Jiao Tong University (China)
Stellenbosch University (Republic of South Africa)
Technische Universität Chemnitz (Germany)
The University of Adelaide (Australia)
The University of Freiburg (Germany)
The University of Minnesota (U.S.A.)
The University of Strasbourg (France)
Tongji University (China)

What is AC21?

AC21 is an international academic consortium comprised of educational and research organizations from around the world. It was established at the Nagoya University International Forum, held on June 24, 2002, with the aim of creating an international academic network; the AC21 Secretariat is also located at Nagoya University.

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