Young German Scientists Around the Globe

RISE worldwide Alumni Share Their Experiences

A Reader

DAAD

Publisher
Deutscher Akademischer Austauschdienst (DAAD)
German Academic Exchange Service
Kennedyallee 50, 53175 Bonn (Germany)

Editors
Alexander Munzig, Brid Schenkl, Miriam Hippchen, Jessica Marino,
Ashley Gyarmati (Section "Programs for North Americans, Project Grants")
and Jane Fu (DAAD New York Office)

Project Coordination
Section "Programs for North Americans, Project Grants"

Layout and Typesetting
LPG, Bonn

Photo Credits
L. Bolle (p. 54/55), A. Brückner (p. 64/65), S. Dunemann (p. 122), A.-K. Fahl (p. 123),
M. Flaig (p. 122), M. Gress (p. 8/9), C. Günthner (p. 122), K. Held (p. 123), R. Jakobs (p. 44/45),
B. Karykowski (p. 125), S. Lippert (p. 125), A. Lischka (p. 83), C. Melzer (p. 123), J. Mendil (p. 124),
M. Meschnig (p. 124), J. Nuy (p. 122), L. Otto (p. 125), A. Radek (p. 124), K. Reimer (p. 115),
K. Schick (p. 122), M. Schied (p. 125), M. Schmitz (p. 125), L. Schneider (p. 123, 125), C. Schuh
(p. 104/105), S. Seelk (cover), L. Sonntag (p. 13), R. Tordy (p. 20/21), M. Uhrig (p. 121), R. Ukis
(p. 124), M. Vögele (p. 124), J. Zorn (p. 123)

Printed by
in puncto druck+medien GmbH, Bonn

Circulation
01/2014 – 4,000

This publication was funded by the German Federal Ministry
for Education and Research.

Federal Ministry
of Education
and Research

Young German Scientists Around the Globe

RISE worldwide Alumni Share
Their Experiences

A Reader

RISE worldwide gave me the opportunity to experience life and science in an entirely different cultural environment – in Thailand. The stay abroad taught me a lot about myself and the cooperation with researchers of other countries. But what proved itself most valuable are the friendships I gained during my visit – thanks to RISE worldwide!

Tobias Hanisch, RISE worldwide participant in 2012
at Chiang Mai University, Thailand

RISE worldwide – Young German Scientists Explore Research Internships Around the Globe

Internships and interning in natural science and engineering are no longer rare elements for students, but have nearly become a necessity to succeed in today's globalized world. They have become a turning point for the students' future academic and professional careers. Giving bachelor's students the framework to do hands-on research in an international setting at the earliest possible stage of their career is one major goal of DAAD's family of RISE programs.

RISE is of course an acronym and it stands for Research Internships in Science and Engineering but the "double meaning" is a welcome coincidence. We do hope that these summer research internships, combined with DAAD scholarships offered through the RISE programs, are a stepping stone in the participants' careers, and that it will help them "to take off."

After the start of the original RISE program in 2005 with only 98 grantees, the extension and development to its present four sub-programs did not take long.

Once exclusively an opportunity for young North American undergraduates, the program was extremely well received, evidenced by the soaring application numbers. Soon enough British undergraduates were joining the US and Canadian students,

and graduate students were accepted into the RISE professional program (2007). In 2011 RISE worldwide was born.

Based on the principles of RISE, the program for young Germans took off quickly, with over 400 applications, and 643 internship offers from no less than 34 countries. After the matching process, the first group of 247 RISE worldwide grantees explored laboratories and research facilities around the globe from June to October 2011. This year, in 2013, the program has just finished its third term, and with 741 RISE worldwide research assistants who spent their summer in 53 different countries.

The six to twelve weeks in various projects, from biology to physics, from medicine to earth science, are not only a way to accomplish lab work that might not be possible in Germany at such an early stage of a bachelor's program, but also an opportunity for students to learn lessons outside of the research facility's walls. Whether it is the political situation in Central or South Africa, the nearly constant buzz of traffic in Indian metropolises, or the food in South East Asia, the students are challenged to observe and interpret the host country's culture in a relatively short time. They do not only react and adapt to new rules and customs, they also have to integrate themselves into research teams and cultural groups of various sizes and ethnicities.

In other words, a RISE worldwide summer internship is not just working on a scientific project, but also having a life

changing experience that broadens the horizons of young scientists with varying encounters in and outside the lab. These encounters – the chasing of dreams, the challenges, and the successes – are at the heart of the stories collected in this booklet. It also includes two voices from the perspective of the international hosts and their experiences with one or more bachelor's students in the program. All of the stories are great examples of DAAD's motto "change through exchange."

I would like to take this opportunity to thank the Federal Ministry of Education and Research that continues to support us in making RISE worldwide possible, as well as to express my gratitude to all those RISE worldwide 2011 and 2012 students who have contributed to this publication. Now, dear reader, enjoy the journey through the various German alumni's stories.

Dr. Dorothea Rüland
Secretary General
Deutscher Akademischer Austauschdienst
German Academic Exchange Service

YEAR 2011

16 Pelican State Physics
Ariane Papke

22 From Asia's Switzerland to Europe's – the Story of a Journey
Gregor Schuhknecht

26 O Jeitinho Brasileiro – the Brazilian Way
Christoph Heuser

30 With RISE worldwide to Chengdu – a Glimpse of the Chinese Way of Life
Clemens Geis

34 Modeling the Variability of Hurricane Intensities in the Texan heat
Cara Nissen

YEAR 2012

40 Discovering Culture and Multidisciplinary Research in Taiwan
Leon Bichmann

46 Nigeria – Contrasts are Everywhere
Josephine Figiel

50 Between Maple Leaves and Spicy Food
Nora Hase

56 Fairytale of One Thousand and One Nights – Join the Vivacious Life of the Middle East
Julia Müller

60 With Greetings from Home
Markus Pauly

66 Three months in Sweden – Living and Working as a student
Ann Cathrin Waindok

70 Colombia – An Experience I Will Never Forget
Janine Börker

74 The Best Way to Experience Research Abroad – RISE worldwide
Melanie Krause

78 Among Paella, Horchata and Lizards
Ann-Katrin Fahl

84 Just the Beginning of Excitement ...
Laura Maschirow

88 Research in the Country of Kangaroos and Deadly Spiders
Torsten John

92 Nano Cups “Down Under”
Jonas Allerbeck

96 Exploring British Columbia
Daniel Rieger

100 High Energy Research in Canada
Philipp Pigard

106 Improving Solar Cells with the Sound of New Orleans’ Jazz
Luisa Sonntag

110 Berkeley & Biofuels
Annika Grimmer

116 Effects of Fire on Endangered Plant Species
Tina Bell

Making ice cream with liquid nitrogen on Freshman Day

Year

2011

Ariane Papke, RISE worldwide participant in 2011, Louisiana State University, USA

Ariane Papke graduated from the University of Goettingen with a master's in physics. Currently, she is a scholar of the Helmholtz Research School GeoSim and doing her PhD in mathematics at the Freie Universität Berlin. She participated in DAAD's RISE worldwide program in 2011. In the following years, she completed another research project in her host country.

Pelican State Physics

My name is Ariane and I participated in a three month internship through DAAD's RISE worldwide program in 2011. I worked in the physics department of Louisiana State University in Baton Rouge, USA. It was a great opportunity for me to advance in research and get familiar with American culture and life in the South. Before my stay in Baton Rouge, I traveled to the US once and did not have the chance to become part of an American community. This time, through the internship I was in a working group with people from different countries and with various scientific backgrounds. It was my first encounter with high-performance computing, and Louisiana State University

Thanks to the RISE worldwide program, I gathered experience in working with an international research group. I learned how to handle cultural differences, adopted some parts of the foreign mentality, and I made very close friends as well as work-related contacts for my later career. The project encouraged me to get my master's degree abroad.

Tobias Warnatz, RISE worldwide participant in 2012
at the Spanish National Council for Research, Madrid, Spain

hosted several workshops on this topic and encouraged us to participate. In that way, we had the same basic knowledge and could work more efficiently, focusing on each other's expertise.

I was introduced to an international community that taught me a lot about, not only the American, but also the Chinese, Bulgarian, and Lithuanian cultures. We traveled to New Orleans and experienced the French influence, jazz and Southern Deli, and we got an impression of the destruction the recent hurricanes caused in the South.

A few months after my return to Germany, I was happy to welcome my advisers and some of my former collaborators in the framework of a workshop at Goettingen, my alma mater. The reunion was a great chance for me to present the research project to scientists from both Goettingen and Louisiana State University.

During the three months in Baton Rouge, I learned a lot about science, culture, and myself, and I became a part of the scientific community. Also, my time in the US made me curious, so I returned to the US in 2012 to study abroad for one year at the University of California, San Diego, and Clemson University, South Carolina. In 2013, I expect to graduate with a master's degree in physics from the University of Goettingen and to start my PhD at the Freie Universität Berlin.

At Flinderstation, Melbourne, Australia

Gregor Schuhknecht, RISE worldwide participant in 2011, National University of Singapore

Gregor Schuhknecht, studied biosciences at the University of Heidelberg, where he was awarded his bachelor's of science degree in 2012. In the summer of 2011 he was a DAAD RISE worldwide scholarship holder at the National University of Singapore, where he worked in the immunology program on a project involving blood cancer. Currently he is pursuing a master's program in biology at the ETH Zurich, Switzerland, with a concentration in neuroscience.

From Asia's Switzerland to Europe's – the Story of a Journey

In 2010, I was a biology undergraduate student at the University of Heidelberg when I learned about DAAD's RISE worldwide program. I was instantly fascinated by the prospect of spending a few months in a different country and performing a genuine research project. As an undergraduate, I often was under the impression that our beginner's training and coursework was far from what actual research would look like, and I was eager to finally spend some time in a real lab.

I decided to apply for three projects in different fields of biology which seemed particularly interesting to me. Just around Christmas of that year, I received the notice that I had

been accepted to join a lab at the National University of Singapore during the summer of 2011.

In many ways, Singapore is an exceptional country; despite its small size it has a booming industry and financial market, and is a melting pot of a multitude of ethnic groups. In the course of the last few decades Singapore has become extremely attractive for researchers worldwide, because the government has been investing large sums of money in the country's universities and institutes, and has managed to recruit some of the world's top scientists.

For a few months, I worked on a project in an immunology laboratory of a young professor from Switzerland. The work I was involved in aimed at elucidating how the rodent immune system is capable of overcoming early stages of blood cancer.

In the course of my internship I learned many important state-of-the-art techniques of immunology and received a first thorough insight into how research is done.

Aside from science, I had many very interesting conversations with the postdoc of the lab. We discussed a variety of issues related to research, for instance the publication process, how basic research is performed in academia, and career opportunities awaiting a biologist in the industry or at a university.

In particular, my professor gave me some very valuable advice for my future education. On various occasions we talked about which fields of biology are most promising for the future and which universities could be of interest for my further education.

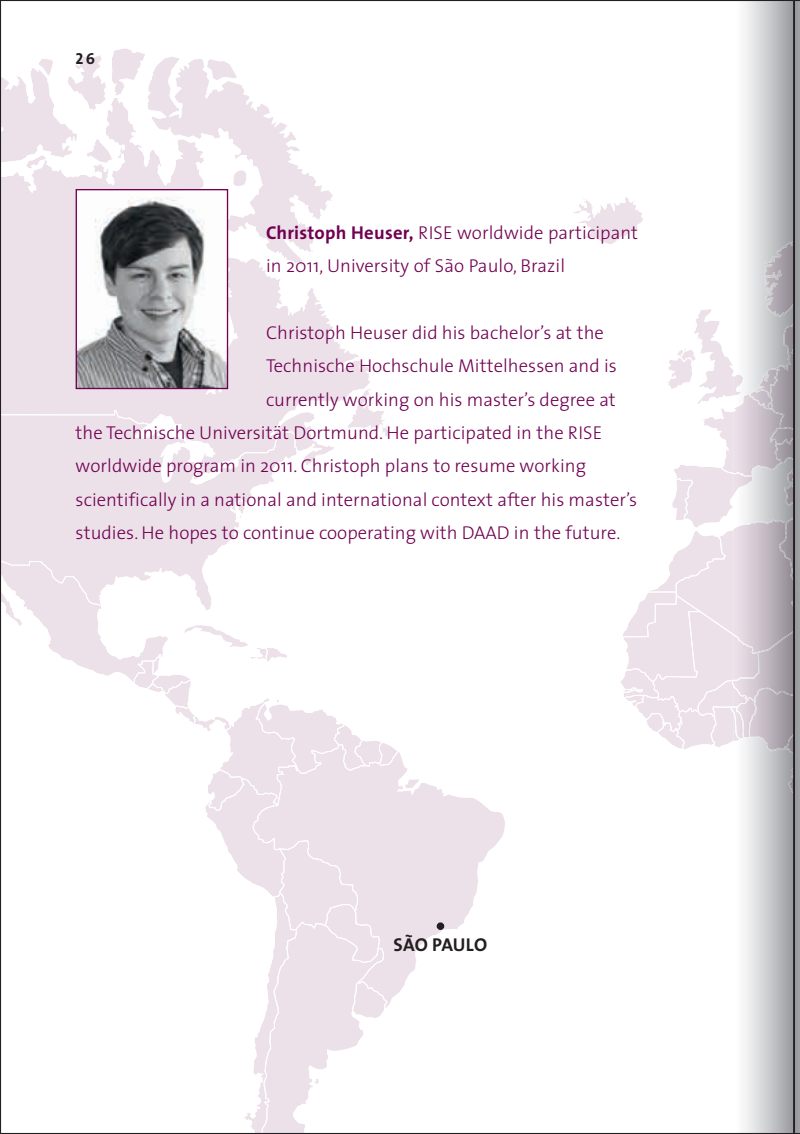
It was because of him that I decided to apply for a master's program in biology at the ETH Zurich, which is considered one of the top universities in the world. He also supported my application with his recommendation, which I am very thankful for. I am convinced that it is very important and beneficial to start establishing such a network as early as possible in your education.

Looking back at my time in Singapore, I can now say that the personal experiences I had were surely even more important than the technical skills I acquired. As an undergraduate student, I was very indecisive in which subfield I should specialize in during my graduate studies. My internship in Singapore had an important influence on my final decision.

I am currently majoring in neurobiology at the ETH Zurich, and I am greatly interested in studying neurodegenerative diseases, like Alzheimer's or Parkinson's disease, which are a very hot topic at the interface of immunology and neurobiology.

Christoph Heuser, RISE worldwide participant in 2011, University of São Paulo, Brazil

Christoph Heuser did his bachelor's at the Technische Hochschule Mittelhessen and is currently working on his master's degree at the Technische Universität Dortmund. He participated in the RISE worldwide program in 2011. Christoph plans to resume working scientifically in a national and international context after his master's studies. He hopes to continue cooperating with DAAD in the future.



O Jeitinho Brasileiro – the Brazilian Way

The summer of 2011 was probably the most exciting summer of my life so far, because I spent it in ... Brazil! Back then, I was a bachelor's student in industrial engineering in my final semester at the Technische Hochschule Mittelhessen. Seeking for opportunities to go abroad, I learned about DAAD's RISE worldwide program, applied and got accepted for an internship at the University of São Paulo. I worked at the Escola de Engenharia de São Carlos, which is the engineering school of the University of São Paulo in São Carlos. Together with my supervisor, Professor Mateus Gerolamo, I worked on the internationalization of the university's industrial engineering

course and later on personnel quality management certifications for professionals.

The internship in Brazil changed my whole life. First of all, it was my first contact working scientifically and I really liked it. I acquired a great amount of knowledge, which also helped me when I wrote my bachelor's thesis. In fact, I liked it so much that I am now a master's student at the Technische Universität Dortmund, where I am also employed as a student research assistant. I am also considering doing a doctorate after my master's studies. When Professor Gerolamo did his doctorate, he went to Germany for two years with the support of DAAD and acquired his PhD after working for another two years at the University of São Paulo. This is something I think about doing as well.

Secondly, it was my first stay abroad for more than one or two weeks and my first time outside of Europe. I assume that there are few countries which have to face more prejudices than Brazil. To be honest, before my departure I was scared about crime, drugs, and poverty. However, I soon came to realize that Brazil has moved on and is now truly a country with lots of potential. Even though I returned to Germany with empty pockets; my money was taken by incredibly good restaurants, souvenirs and unforgettable trips, not by criminals. I met inspiring people, made great new friends, saw beautiful places, ate the best food of my life and I even learned a new language, more or less.

Brazil is now a part of my life. I will return as soon as possible, hopefully for more than just holidays.

If you are interested in an internship in Brazil, consider reading the blog I wrote during my stay in São Carlos. It is available on DAAD's homepage.

Clemens Geis, RISE worldwide participant in 2011, Sichuan University, China

Clemens Geis studies material science at the Justus-Liebig-University of Giessen. He finished his bachelor's degree in 2011 and subsequently interned in Chengdu supported by DAAD. Currently he is doing his master's degree intending to finish it in early 2014.

With RISE worldwide to Chengdu – a Glimpse of the Chinese Way of Life

I'm studying material science at Justus-Liebig-University in Gießen. In September 2011 DAAD gave me the opportunity to explore China. I got a scholarship for two months to intern for the College of Polymer Science at Sichuan University in Chengdu. This internship in China fit perfectly in my timetable between my bachelor's degree and the beginning of my master's course. So I finished my bachelor's thesis on Friday and jumped onto the plane to Chengdu on Monday.

Chengdu is located in the mid-west of China and has about ten million inhabitants. Nearly every time they broadcast a report about pandas on TV, Chengdu is mentioned as

the home of pandas because of their huge breeding station. Despite of the size of this city and the fact that my previous trips were limited to Europe, I did not experience the so called "culture shock." I received a warm welcome by the working group, was taught to eat with chopsticks, and searched in vain for seat belts in the cab. As I was the first foreigner in the working group of Prof. Fu, I was a special guest and got an all-around package. Naturally, people from Europe or the US always attract the attention of the Chinese, so you will be addressed and photographed quite often – sometimes demonstratively, sometimes clumsily. Anyways, funny situations and conversations are bound to happen.

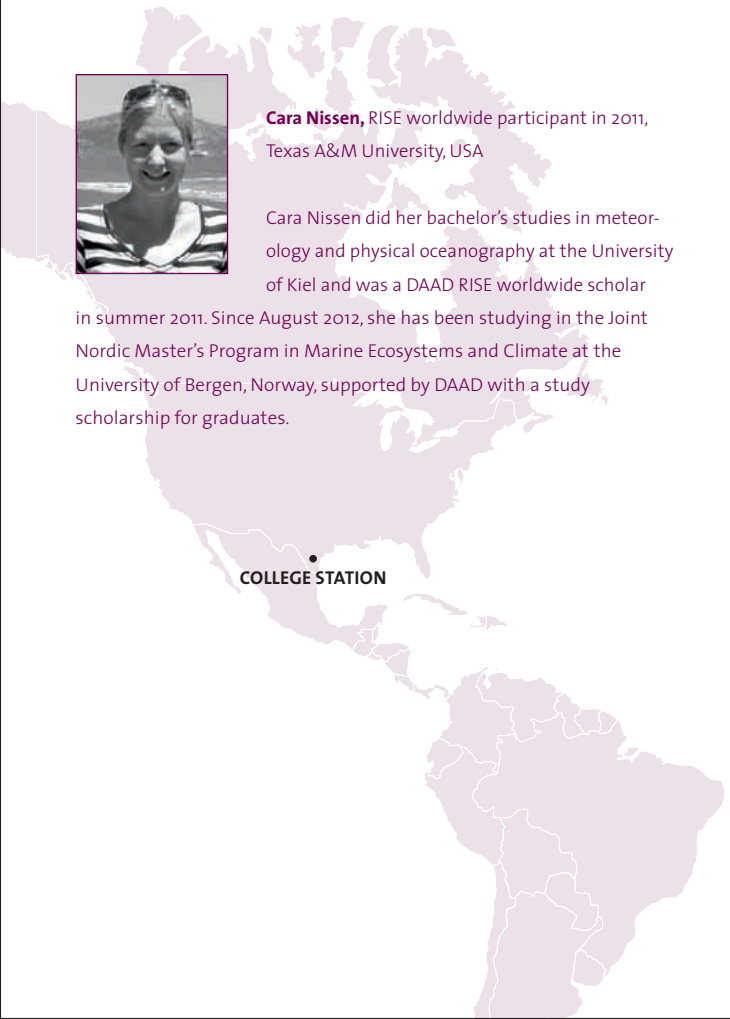
The work I had to do was concerning conductive polymers. Even though my study course is named material science, the matter of polymer science is not really dealt with. Therefore, I very much appreciated this additional qualification and was truly impressed by the variety of techniques in a field I did not know anything about. Besides the practical experience, I also gained a lot of theoretical knowledge about polymers by reading papers and reports. After my first week, I was introduced to the preparation of conductive polymer samples and started my work by improving the synthesis for better conductivity behavior. Sometimes I was also invited to take part in guest lectures with different foreign professors (I also met a professor from Germany) and thereby obtained a broader knowledge on polymer subjects like tribology research and fabrication.

Of course, I was not working all the time. On the weekends I was often shown around and made trips to the most popular places in the region. Unfortunately, in two months, you only get a small impression of how many interesting places you could explore. In contrast to the general belief that China has many environmental problems, you can still enjoy the wonderful countryside outside the cities. Some beautiful natural sites were developed for mass tourism and are always crowded, but there are also places that have not yet been discovered by the masses. The most impressive tour I experienced was almost a promotional trip to the destination: Jiu Zhai Gou National Park. It was very interesting to witness the different ways the Chinese people enjoy their holidays

Back in Germany, I was happy to reunite with my family and friends. But on the other hand, I missed the Chinese way of life. So the following year, I decided to visit my friends in Chengdu again.

Cara Nissen, RISE worldwide participant in 2011, Texas A&M University, USA

Cara Nissen did her bachelor's studies in meteorology and physical oceanography at the University of Kiel and was a DAAD RISE worldwide scholar in summer 2011. Since August 2012, she has been studying in the Joint Nordic Master's Program in Marine Ecosystems and Climate at the University of Bergen, Norway, supported by DAAD with a study scholarship for graduates.



Modeling the Variability of Hurricane Intensities in the Texan Heat

In July 2011, before leaving for College Station, a rather small town where Texas A&M University is located, I mostly heard one cliché about Texas when asking people what they knew about my destination: Everything is bigger in Texas! After living and working there for two months, I can confirm: Yes, it is!

Bigger people, bigger houses, bigger barbecues, bigger packages in the supermarkets, bigger cars, bigger streets, higher temperatures in summer – this phrase sums up everything.

For two months, I was experiencing the Texan summer heat while working with Steven Quiring, Associate Professor in the Department of Geography at Texas A&M.

I was doing my best to get used to the Texan way of life during this time, but there was one striking difference between College Station and most university cities in Europe, you need a car to get around in Texas. As I was not used to being dependent on other people (even though they always offered me help and wanted to drive me around), I decided to keep on biking to work as I did back home.

Looking back I have to say, this probably helped me the most in getting used to Texan climate and led to a lot of entertaining encounters with astonishing and impressing Texans at work!

My work involved developing statistical models describing the interannual variability of hurricane intensities in the North Atlantic and followed up the work done by Tina Dippe, 2010's DAAD RISE in North America intern of Steven.

At the time I was doing RISE worldwide, I was in the process of finishing my bachelor's studies in meteorology and physical oceanography at the University of Kiel.

I was uncertain about the topic of my bachelor's thesis before leaving for Texas, but my stay at Texas A&M University led to a thesis dealing with cyclones in the Mediterranean Sea in the ECHAM5 model, and investigating their tropical or extra-tropical characteristics in the 20th and 21st century. Thereby, I highly profited from the knowledge gained during the internship.

Right now, I am in the first year of my master's in a program called Joint Nordic Master's Program in Marine Ecosystems and Climate at the University of Bergen, Norway. I am again supported by DAAD through a one-year graduate scholarship.

I am still in active contact with Steven and Tina to finalize the work on a publication.

My stay in Texas was, both personally and professionally, a great experience for me and I am very thankful to DAAD for making this possible.

Year

2012

Leon Bichmann, RISE worldwide participant in 2012, National Yang-Ming University, Taiwan

Leon Bichmann is enrolled in the chemistry and biochemistry program at Ludwig-Maximilians-Universität in Munich. He was recipient of the RISE worldwide scholarship in 2012. After his research project at National Yang-Ming University, Institute of Biophotonics in Taiwan, he interned at the Max-Planck-Institute of Biochemistry in Munich and is currently working on his bachelor's thesis at the Physical Chemistry Department of the Ludwig-Maximilians-Universität. His experiences broadened his view on many scientific topics. He successfully applied for the international, multidisciplinary molecular bioengineering master's program of the Technische Universität Dresden.

Discovering Culture and Multidisciplinary Research in Taiwan

When I first read about RISE worldwide on the internet, I was elated. I knew right away that I would do my best to get a chance to take part in this DAAD program. As I was in the fourth semester of my bachelor's program in chemistry and biochemistry at Ludwig-Maximilians-Universität in Munich, I had already gained a lot of basic knowledge and skills, but had not had a chance to get an insight into how this knowledge was applied in actual research. At the same time I was looking for an opportunity to spend some time abroad to practice my language skills and see the world. During the first semesters you tend to be trapped in the laboratory and on campus.

Hence, RISE worldwide was just the right thing for me. I was very happy to hear that I got accepted to go to Taiwan for six weeks to do research in computational biophysics in the group of Prof. Fischer at National Yang-Ming University in Taipei. Although the subject did not exactly match my chemical background, it was one of my preferred choices as I also wanted to learn about fields of science that are indeed related to chemistry, but involve more physics and computation.

Subsequently, my stay in Taipei evolved into a great experience, giving me the opportunity to learn a lot about interdisciplinary biophysical research in a context that I would not have been confronted with at my home university, and I got to know the culture and living standards of Taiwan. Traveling and living independently in Taiwan while not being able to speak Chinese was a challenge, but it was a great lesson and I settled in quickly and managed to adapt to the different environment. In addition to that, I met a lot of international scientists, such as professors and PhD students more personally than I had in Germany, as well as getting an insight into their lives and working situations.

As a result of my stay, I was motivated and confident in making the decision to focus on biochemistry and physical chemistry in the last two semesters of my bachelor's studies, which allows students to select their courses from a range of different specializations. Concurrently with my studies, I was still summarizing and discussing the results of my internship

with my supervisor. The returnee meeting with all other RISE worldwide students was also a great experience that broadened my view on the different areas of research and countries that other students had gone to. I got the chance to give a presentation.

Eventually I managed to find another internship at the Max Planck Institute of Biochemistry in Munich to replace a biochemistry lab course of my curriculum. I also arranged to carry out my bachelor's thesis project with a research group at the Physical Chemistry department of the Ludwig-Maximilians-Universität. My continued interest in the research I did in Taipei, led me to sign up for a master's program lecture dealing with similar issues.

Finally, I researched and compared master's programs which specialize in biophysical chemistry and will allow me to gain more experience abroad. Subsequently, I applied for an international multidisciplinary master's at the Technische Universität Dresden and KU Leuven and a possible Erasmus stay abroad. In addition I'm currently taking a Japanese language course, because I am still interested in Asian cultures. I am also contemplating going back to the research group in Taiwan for an internship or thesis project during my master's program.

Skyline of Toronto, Ontario, Canada

Josephine Figiel, RISE worldwide participant in 2012, Osun State University, Nigeria

Josephine Figiel studies nutritional science at Friedrich Schiller University Jena and is currently working on her thesis. She was a DAAD RISE worldwide intern during the summer of 2012. After finishing her studies, she plans to specialize in the nutritional situation of developing countries.

Nigeria – Contrasts are Everywhere

After spending one year as an au-pair in the United States of America, I started studying nutritional sciences at the University of Jena. During my last semester I decided to apply for a DAAD scholarship – an internship that took place in the Southwestern part of Nigeria. The project I participated in for six weeks focused on underutilized and under-exploited vegetables in Nigeria, such as “ugu” (Telfairia occidentalis), “igbo” (Solanum macrocarpon), “soko” (Celosia argentea), “tomati elejo” (Trichosanthes cucumerina) and “tete” (Amaranthus cruentus). These underutilized leaf vegetables are viable sources of nutritional food, can play a significant role

concerning the income of farmers, and can consequently decrease poverty. During my stay, we visited different sites to collect data on plant growth, assess plant population effects and organic fertilizer usage. The main goal of the project was to raise awareness of the nutritional value and economic potential of these vegetables, but also to increase income of the poor rural women with the support of improved production and marketing.

When you visit Nigeria you need to be prepared for the unknown, for pleasant and unpleasant surprises. It is far from a holiday destination, there is little to see in the way of conventional sightseeing and it is an environmental disaster. Nigeria is a country of extremes. The Federal Republic of Nigeria has a population of 150 million people, including more than 250 rich and diverse ethnic groups with several religions. I was continuously surprised and happy about the fact that every person takes their time to say "welcome" or "kaabo" as a Yoruba would say.

Nigeria is different from all other countries I visited before. Contrasts are everywhere. There is a fantastic and wonderful rainforest, piles of rubbish everywhere, colorful markets with the most exotic fruits, gun toting men in civilian clothes, thousands of bats, creative and generous people, vibrant chaos on the roads, stripped natural resources, frequent shortages of fuel and electricity and women wearing the most beautiful dresses I have ever seen.

Nigeria always hits the headlines for all the wrong reasons. It is a magnificent country with a serene and peaceful mood, especially in the rural areas.

This was the most personal and distinctive trip I ever made, and I will never forget it.

Nora Hase, RISE worldwide participant in 2011 and 2012, University of British Columbia, Vancouver, Canada & Bogor Agricultural University, Indonesia.

Nora Hase studied biology at the University of Rostock and was a two-time participant of DAAD's RISE worldwide program. She interned at the University of British Columbia in Vancouver, Canada in 2011 and at the Institut Pertanian Bogor in Indonesia in 2012. Currently, she is applying for different master's programs at German universities.

VANCOUVER

BOGOR

Between Maple Leaves and Spicy Food

Cloudy gray days, noisy cities, tons of scooters and people – these were my first impressions when I landed in Jakarta, Indonesia in early September 2012. During the very slow, three-hour drive to Bogor, my new home for the duration of my internship, I began to doubt: Was I really supposed to spend the next two months in this country surrounded by so much traffic and so many people?

For this exciting adventure I left my hometown Rostock in Germany where I have been studying biology since 2009. The new environment in Indonesia was a big contrast to my home country. The first month in Bogor was really hard. I was not only

busy interning at the Institut Pertanian Bogor and meeting the team of the lab and the staff of the faculty of fisheries and marine science, I was also busy getting used to spicy food, constant attention, filthy streets, sweat inducing temperatures, and to almost daily power outages. However, after some weeks of acclimatization, I learned to appreciate the friendly and always smiling people, the stress-free and easy-going attitude towards life and even the food, which gave me a hard time in the beginning. On a couple of field trips to some of the more than 15,000 islands, through hikes and snorkeling I discovered beautiful nature and the astonishing underwater world. Great experiences gathered either in the lab or in everyday life made it really hard to leave this surprisingly amazing country at the end of my internship.

This was not my first stay abroad. One year before my experience at IPB I got the chance to do an internship at the University of British Columbia in Vancouver, Canada. At that university I got an insight into a totally different field of biology. I was part of a great research team in a molecular biology lab and gathered many theoretical and practical experiences.

Both internships were funded by DAAD's RISE worldwide program and I would not trade them. Both internships improved my language skills tremendously and helped me to gain cultural experiences and practical knowhow. The time I spent abroad was definitely an important step in my academic career. The next step will be the master's degree. Right now, I

am applying for different master's programs at various universities in Germany. The internships will for sure help me to get into my favorite program by upgrading my curriculum vitae.

RISE worldwide participant Linda Bolle on horseback during an excursion in Kirgizstan

Julia Müller, RISE worldwide participant in 2012, Khalifa University, United Arab Emirates

Julia Müller has finished her bachelor's at the Technical University Munich in the department of electrical engineering. Afterwards she joined the master's program there. She was a scholarship holder of RISE worldwide in autumn 2012 in Sharjah, UAE. In 2013 she visited the Emirates and her mentor's family.

Fairytale of One Thousand and One Nights – Join the Vivacious Life of the Middle East

As usual for a bachelor's student of electrical engineering and information technology at Technische Universität Munich I had to do an internship. However, it's unusual for Technische Universität Munich students to go abroad for the internship. With the RISE worldwide program I got the chance to work in one of the most interesting parts of the word, The United Arab Emirates. To be a bit more precise: I was working in Sharjah.

Sharjah – one of the seven Emirates – is about ten kilometers away from Dubai, but people there live more traditionally than in Dubai. Without knowing any Arabic, I was wondering how hard it would be to find my way around. It turned out that

everything in Sharjah is bilingual: Arabic and English. In addition, the locals are extremely hospitable, where hospitality means to treat others like your best friends and your best friends like your own family. So whenever I had a problem, my friends and my supervisor tried really hard to help me solve it.

For two months I was working with a great supervisor to create a free energy electrical generator. Our aim was to design a generator that does not have a rotating part anymore, but instead uses the concept of feedback and magnetic resonance. The idea was first documented by Nicola Tesla, then a Georgian named Kapanadze took out a patent for that idea. My supervisor and I wanted to get the word out about the secret of the patent and wanted to know if it really worked.

I was happy to have my own lab at Khalifa University with other university staff around to answer my questions. After all the research was done, we tried some coils and used measurement devices to get out the feedback voltage of the resonance. In retrospect, I was very optimistic to believe in Nicola Tesla's dream and Kapanadze's patent, but we did not have enough time for our final check. Maybe the circuit will run in the future as an actual state of the art model.

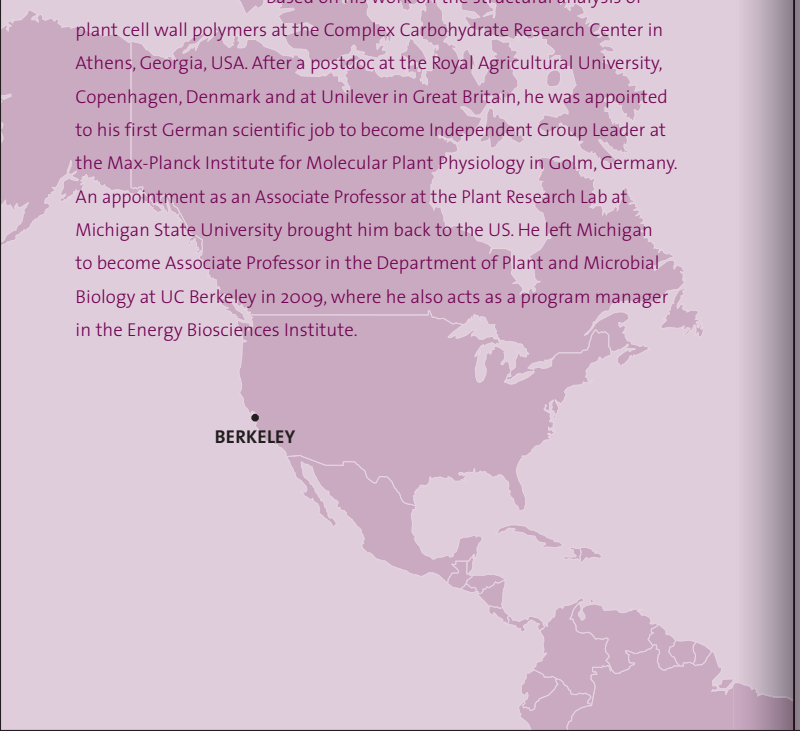
In the end, my time in the United Arab Emirates taught me a lot about Middle Eastern culture. I met many interesting people and learned many things that Europeans do not normally know. It was definitely worth the trip.

RISE worldwide did not only open my mind to the vast world of science, but it has put me right in the middle of it! A unique experience personally, but most importantly an indispensable addition to my scientific career.

Natalie Braun, RISE worldwide participant in 2012
at the University of British Columbia, Vancouver, Canada

Dr. Markus Pauly, RISE worldwide supervisor since 2011, University of California, Berkeley, USA

Markus Pauly was awarded his Dr. rer. Nat. (PhD) from the Technical University Aachen in 1998 based on his work on the structural analysis of plant cell wall polymers at the Complex Carbohydrate Research Center in Athens, Georgia, USA. After a postdoc at the Royal Agricultural University, Copenhagen, Denmark and at Unilever in Great Britain, he was appointed to his first German scientific job to become Independent Group Leader at the Max-Planck Institute for Molecular Plant Physiology in Golm, Germany. An appointment as an Associate Professor at the Plant Research Lab at Michigan State University brought him back to the US. He left Michigan to become Associate Professor in the Department of Plant and Microbial Biology at UC Berkeley in 2009, where he also acts as a program manager in the Energy Biosciences Institute.



With Greetings from Home

Students from my home country, Germany, funded by the DAAD RISE worldwide program, have been coming to my lab at the University of California Berkeley during the summer for the last five years. The procedure is simple, a one-page project proposal is submitted by me to the RISE worldwide database in late fall emphasizing the area of research and the methodology that would be learnt/used. It has always been important to note in these descriptions that the internship does not constitute a university course with different experiments each day, but a contained research project , in our case plant and biofuel research, that is “owned” by the visiting intern under the

supervision of the already present graduate student/ postdoc. It is also important to stress that the internship should last at least twelve weeks to be able to make significant progress on the research topic.

In February I can go back to DAAD's database and see the applications of the German undergraduate students that are interested in the project. The material deposited by the students is quite sufficient, it includes: a language certificate, transcripts from university courses and most importantly lab experience. Of the five to twelve students that have applied to my projects in the last years I usually pick the top five to six suitable students and interview them via Skype. The main discussion points are their motivation for coming to my particular lab, what their lab experience has been, and what they expect from such as internship. After these interviews I rank two to three students online (required by DAAD). Approximately a month later I receive a message if a student, and which has been matched with my project. My experience in these last years has clearly shown that both DAAD and non-DAAD students have an excellent relevant education which leads to a very productive internship. As a result, in three of the five years I had two German summer students in my lab. In any case, I have a couple of days to confirm to DAAD my willingness to host that selected student, and then the procedure in my university starts to get the documents ready.

In the first few years "Diploma" students joined my lab. These students had already excellent knowledge of lab procedures and safety, and hence were highly productive. One of them returned a year later to do a master's thesis in my lab. Due to the shift in the German education system only bachelor's students came in recent years. They did not have such extensive lab experience and more time had to be spent on training them. However, in the end the stay was very fruitful, and one of them used the results of this internship for her bachelor's thesis at the German university. Unfortunately, the German bachelor's study schedule leaves very little flexibility in the internship time and duration, which was not the case with the Diploma students. Nevertheless, all of the students integrated very well into my international lab and their work has been instrumental to our research endeavors. Their level of scientific education is certainly much higher than the average bachelor's student at our university. It was thus a pleasure to host and mentor excellent students from back home. In conclusion, I can certainly highly recommend the DAAD RISE worldwide program to my colleagues.

RISE worldwide participant Antje Brückner
at Lake Moraine, Alberta, Canada

Ann Cathrin Waindok, RISE worldwide participant in 2012, Örebro University, Sweden

Ann Cathrin Waindok studies medical biology at the University of Duisburg-Essen and is writing her bachelor's thesis right now. She is planning to get her master's degree in Sweden, where she stayed as a scholarship holder of DAAD's RISE worldwide program in 2012.

Three months in Sweden – Living and Working as a Student

DAAD's RISE worldwide program offered me the chance to go to Örebro, Sweden for three months. It was not my first stay in a foreign country, since I worked at the University of Helsinki some years ago. However, it is always exciting to spend time in another country. You never know what your stay will be like, what kind of people you will meet and how work is being done – that is what makes it interesting and surprising. During my time in Sweden I was part of a small research group. I learnt much about cloning, transformation and finally purified a putative vaccine against chlamydia. In the beginning, I was introduced to the methods and everything was explained to me.

Immersing myself in a fascinatingly different culture while doing research in a promising engineering project? As a bachelor's student with packed exam periods in the summer? DAAD's RISE worldwide made this possible!

Fabian Riether, RISE worldwide participant in 2012
at Khalifa University, Abu Dhabi, United Arabic Emirates

I got a lot of help and support, not only from members of my research group, but also from other researchers. Nevertheless, due to an unexpected offer, my supervisor left to another city after six weeks. From this time on I worked completely independently. Of course there were weekly lab meetings in which the other group members gave me advice, and in which we analyzed the results together. Anyhow, it was my task to figure out different methods, to establish them in the lab and also to keep a detailed lab book, so that my studies could be used by any other member of the lab in the future. I read a lot of scientific articles, wrote a report on my own and learned to think in a problem-based way. I very much enjoyed the supervised work, as well as the independent work. I personally think that both were a good preparation for my bachelor's thesis, which I will be writing in the summer of 2013

The internship allowed me to widen my professional and my cultural horizons. The researchers that I got to know came from many different countries – India, Russia, China, Australia, Serbia, Greece, Ethiopia, Turkey and Sweden of course. We spent a lot of time outside the lab together and got to know each other's cultures.

Furthermore, I travelled a lot – almost every weekend. It was a good way to get to know the country and the people. During long train rides it was incredibly easy to start conversations. I learnt a lot about the Swedish culture. All in all, I had an awesome time and I am glad for the chance to participate in RISE worldwide.

Janine Börker, RISE worldwide participant in 2012, Universidad Nacional de Colombia, Colombia

Janine Börker received her bachelor's degree in geosciences at Leibniz Universität Hannover in 2012 and is doing her master's in raw material geosciences/mineral deposits at Technische Universität Clausthal. She received a scholarship within the RISE worldwide program in 2012. This year Janine got the chance to participate in a mapping course in Rwanda.

Colombia – an Experience I Will Never Forget

After having studied geosciences in Hannover and having received my bachelor's degree in 2012, I went to Colombia for an eight-week internship. I worked at the Universidad Nacional de Colombia in Bogotá, in the project "Characterization of Ta-, Nb-, W-, Sn- and REE-deposits in Colombia" under Prof. Dr. Thomas Cramer's stewardship.

The internship in Colombia was a great chance to learn more about the investigation of mineral deposits, and it taught me a lot about the working conditions abroad. It was very interesting to work with the group of students and to learn about their university and their school environment in Colombia. I really

got to know a lot about the Colombian culture and even made new friends. During the whole internship I had great support and never felt uncomfortable. I am still in contact with my professor and colleagues in Colombia and would love to go back to work there in the future.

I am really interested in the field of mineral deposits and I would like to work in it later on. Because of this, I am momentarily doing a specialization during my master's studies at Technische Universität Clausthal in raw material geosciences – mineral deposits.

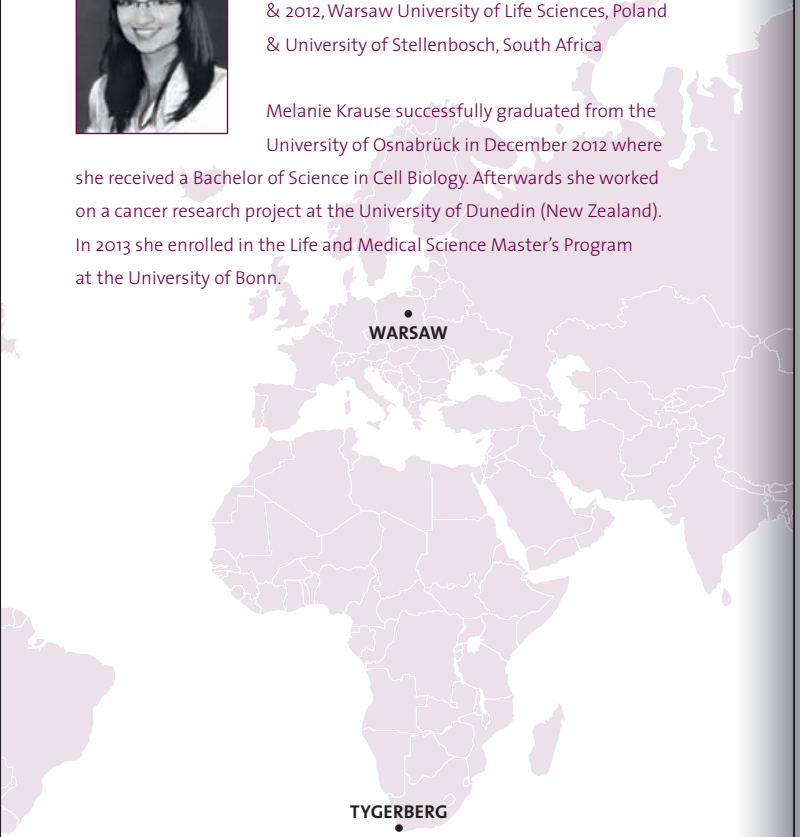
Finally, I can say that I really appreciated the internship and I want to thank DAAD and RISE worldwide for giving me the opportunity to accomplish it.

A program which did not only open new doors into the scientific world for me, but let me catch a glimpse of diverse and foreign cultures. RISE worldwide was a life changing experience and helped me to navigate during the onset of my still young career.

Lisa Schroeter, RISE worldwide participant in 2012
at The University of Newcastle, Australia

Melanie Krause, RISE worldwide participant in 2011 & 2012, Warsaw University of Life Sciences, Poland & University of Stellenbosch, South Africa

Melanie Krause successfully graduated from the University of Osnabrück in December 2012 where she received a Bachelor of Science in Cell Biology. Afterwards she worked on a cancer research project at the University of Dunedin (New Zealand). In 2013 she enrolled in the Life and Medical Science Master's Program at the University of Bonn.



The Best Way to Experience Research Abroad – RISE worldwide

It all started with a small poster at the info-board of my university, but what was mentioned there sounded fantastic: internships in scientific institutions around the world supported by DAAD. I was not sure if I would fulfill the requirements, but why not give it a try? And it worked! In 2011, after my forth semester of studying cell biology at Osnabrück University I got to intern at Warsaw University of Life Sciences in Poland for six weeks. This was the first research internship I ever had and it was great since it gave me the chance to experience research and to work on a real project. My very friendly supervisor who was the head of the biochemistry department and his colleagues

taught me some methods I did not know yet. This knowledge was very beneficial later in my studies. My supervisor also took the time to show me around the city. Because I liked my first internship so much I decided to apply a second time.

I chose to apply for an HIV project at Stellenbosch University in South Africa, and I was absolutely excited when I received the E-Mail that I was a match for this project. It was a bit difficult to coordinate being away from the university for twelve weeks and finishing my studies on time, but even an extension to the regular study time is worth the experience of a RISE worldwide internship. This internship gave me the opportunity to work in a field that I was very interested in and that I considered working on in my future career. The technique I worked with is not very well known in German universities and I think without this internship I would not even know that it exists. The stay also gave me the chance to improve my English, to meet new people, and experience this wonderful country that is absolutely beautiful, and which I will definitely visit again in the future. I made great friends with some of the students who worked on their thesis in the lab and also with some other German interns who had been there during that time as well.

I liked traveling before I participated in RISE worldwide. The two countries, laboratories and projects I saw on the program were completely different from each other, and now I can not wait to see yet more of the world.

By working in research, it is likely that I will end up in a country far away from Germany, at least for some years or even for my whole career. RISE worldwide is the perfect opportunity to get a first impression of how this life could be. I highly recommend the program to every German bachelor's student who can make time for it. The only disadvantage of the program is that it is currently not open for master's students. The two internships were the highlights of my three years of studying and I would definitely do it again!

Shortly after I came back from my second internship, I successfully finished my bachelor's studies at Osnabrück University (in 2012) and I will continue with an English speaking master's program in the immune biological and biomedical field. I am still keeping in touch with my former supervisors and the friends I made in those countries. I will also continue to do international research internships.

Ann-Katrin Fahl, RISE worldwide participant in 2012, University of Valencia, Spain

Ann-Katrin Fahl studies biology at the University of Heidelberg. In 2012, she received a RISE worldwide scholarship from DAAD to conduct research on lizard cognition and sex differences in Valencia. In 2013, she went back to Valencia and worked in the lab for another two weeks. She plans to write her bachelor's thesis about lizards in the same research group in summer 2014.

Among Paella, Horchata and Lizards

I am very interested in zoology. I would like to work in this domain after my studies, preferably in connection with field research and in reference to environmental conservation, which both have a high priority for me. I heard about DAAD's RISE worldwide program from a fellow student of mine, who was awarded a grant the year before. She persuaded me to send my application despite of a lack of time during that period and supported me a lot, for which I am very grateful. The effort paid off! I was given the opportunity to travel to Valencia, Spain for a ten-week internship, and accompany and support the experiments of a master's student from the Institut Cavanilles de

I participated in a marine biology internship on the Caribbean coast of Colombia. It was a unique, life changing experience and this project took me to some of the most beautiful places that can possibly be found on this planet.

Eva Grün, RISE worldwide participant in 2012
at CEMARIN, Santa Marta, Colombia

Biodiversitat I Biologie, Evolutiva, who is currently writing his master's thesis about lizard cognition.

The assignment was divided into three parts: 1. (theoretical) Development of an applicable learning experiment in a largely unknown area (for example spatial cognition); 2. Acquisition of the experimental animals in the field; and 3. Accomplishment of the experiments.

For the development of the experiments, it was necessary to read a lot of (English) literature, because I had never done anything like this before. The main focus of my application for this project was the unique opportunity to acquire some knowledge and experience in a different area of zoological biology, since there are no lectures (courses/classes) on cognition and behavioral biology at the University of Heidelberg. Another important reason for choosing the internship was the integrated field work, namely the capture of the lizards, which proved to be a lot of fun. What I found especially creditable was the fact that the trial conditions did not cause any injuries for the animals. There were no physical surgeries and after the experiments, the lizards were taken back to the same place they had been caught at before.

The Spanish people welcomed me and were very friendly, despite some language barriers in the beginning. I do not speak Spanish and many Spaniards do not speak English very well. Nevertheless, I had a lot of fun and I got along very well with my colleagues from the university, as well as my flat mates.

How I imagine my future? Well, I plan to write my bachelor's thesis about a zoological topic in my eighth semester and after that I want to go to Australia for work and travel. Later in my academic studies, I would like to complete a master's in zoology or ecology. Prior to that, I want to send another application to the RISE worldwide team, and hopefully obtain a second chance to get to know another country and another culture. Once again, they are offering a lot of exciting projects in the area of zoology and ecology this year. I would love to pack my bags and start another internship right now! But even if it does not work out for a second time, I'm extremely grateful to DAAD for the awesome experience they have already made possible for me.

If all goes well with my study plans, and if I have the financial capabilities, I will go back to Valencia for two or three weeks this summer and do some more field research with my supervisors about the lizards in the Pyrenees.

Science is not always fast: an escaping test object

Laura Maschirow, RISE worldwide participant in 2012, Charles Sturt University, Australia

Laura Maschirow just finished her bachelor's degree in nutrition science at the University of Potsdam and since October 2013 she has been working on her master's degree at the same institution. Laura was a RISE worldwide scholarship holder for three months in Australia in summer 2012. After her internship at Charles Sturt University, she continues her cooperation with her supervisor to complete the publication of a paper. Laura's RISE worldwide DAAD experience helped her find another internship in Athens, Greece in the summer of 2013.

Just the Beginning of Excitement ...

It was my first overseas flight and I was really excited when I entered the big plane of Singapore Airlines, which would take me up into the sky for more than 20 hours and release me on a different continent. From the beginning of my studies at the University of Potsdam on, I wanted to go abroad and do more than just attending the obligatory lectures and lab courses. Therefore, I was certain I wanted to be part of the RISE worldwide program, which offered me the opportunity to both see another part of our colorful world and gain some practical experience in a new research environment. After all the application paper work and waiting, I was finally given the chance

to do a twelve-week research internship in the biochemistry lab at Charles Sturt University in Albury, Australia. The project was part of a rural diabetes screening, carried out by the university-associated health clinic, and I was involved in the extensive screening procedure and the biochemical analysis of human urine and blood samples for inflammatory, coagulation and oxidative stress markers in prediabetes patients. It was a great opportunity that I was allowed to work independently and able to contribute to a generation of real scientific data, which I summed up in a report at the end of my stay. The knowledge about metabolic diseases and the basic, good lab experiences I had acquired during my undergraduate studies in nutrition science were absolutely helpful and formed the basis for a successful internship. My supervisor in Australia always had an open ear for my ideas and was very pleased with my work. In the end he offered me to come back again to continue work on the project during my master's degree or to put me in contact with colleagues in Sydney, where I could do another project in a related research field. I was happy to get such positive feedback and am definitely considering going back to Australia for some months during the next years. At the moment, I am working on my bachelor's thesis. After that I will start my master's in nutrition science in Potsdam or Berlin, but I know for sure that I will go abroad again for at least six months during my postgraduate studies; because once you start travelling the world and getting into contact with international scientists,

you have thousands of opportunities for your future career and get kind of "addicted" to academic exchange. When I finished the project in Australia, there was no doubt for me that I would continue to put my research focus on diabetes, a metabolic disease which affects millions of people all over the world. I feel a strong urge to contribute to finding new ways to cure diabetes and want to be part of this scientific process.

The three months in Australia were one of the best experiences of my life, which I would not want to miss. I can recommend the RISE worldwide program to everyone, because it is the best chance to acquire new skills, improve your knowledge in a new academic setting and make important international contacts for the future. It has been a pleasure for me to get the chance to work on a welcoming international team. I learned a lot, gained some new friends and all in all just had a great time. My time in Australia was not only culturally intriguing, but also academically a big success, and I am happy to have turned this plan into reality. I am ready to make further experiences abroad and to hopefully come a little closer in my aim to be a scientist in the field of biomedicine.

Torsten John, RISE worldwide participant in 2012, RMIT University, Australia

Torsten John finished his bachelor's thesis in 2012 and now studies chemistry in a master's program at Leipzig University. He was a DAAD RISE worldwide scholarship holder in 2012 and spent his time at RMIT University in Melbourne. He returned to Australia in 2013 to strengthen his research experience within another DAAD exchange program.

MELBOURNE

Research in the Country of Kangaroos and Deadly Spiders

I started to study chemistry at Leipzig University in 2009. During my third year of studies, I noticed DAAD's RISE worldwide program and I decided to apply for a research project before the start of my master's studies. I was pretty happy after I got the message that I would have the opportunity to intern at RMIT University in Melbourne. Going to Australia and exploring the local culture was one of my life long dreams.

During my internship at RMIT University, I worked on the development of new catalysts for fuel cells with electrochemical methods. In the research group of Professor Suresh Bhargava and Dr Lathe Jones, I gained skills and trained in research areas which

are not offered at Leipzig University. Furthermore, I learned to work independently on a research project and how to find efficient methods to analyse the investigated problems.

My stay in Melbourne also awakened my dream to live the Australian way of life. Living and researching in a big city on the other side of the world changed my personality and broadened my view of cultural, political and social issues. In the beginning, the new situation was not always easy for me, but Melbourne quickly stole my heart.

After my return to Germany, I entered a master's program in chemistry at Leipzig University and had the opportunity to go back to Melbourne. I spent my second semester at Monash University and it felt like being back at my second home. I am working on two research projects in the field of biophysical chemistry and did some coursework too. This longer stay will strengthen my ability to work as an independent researcher and perfect my way of tackling problems.

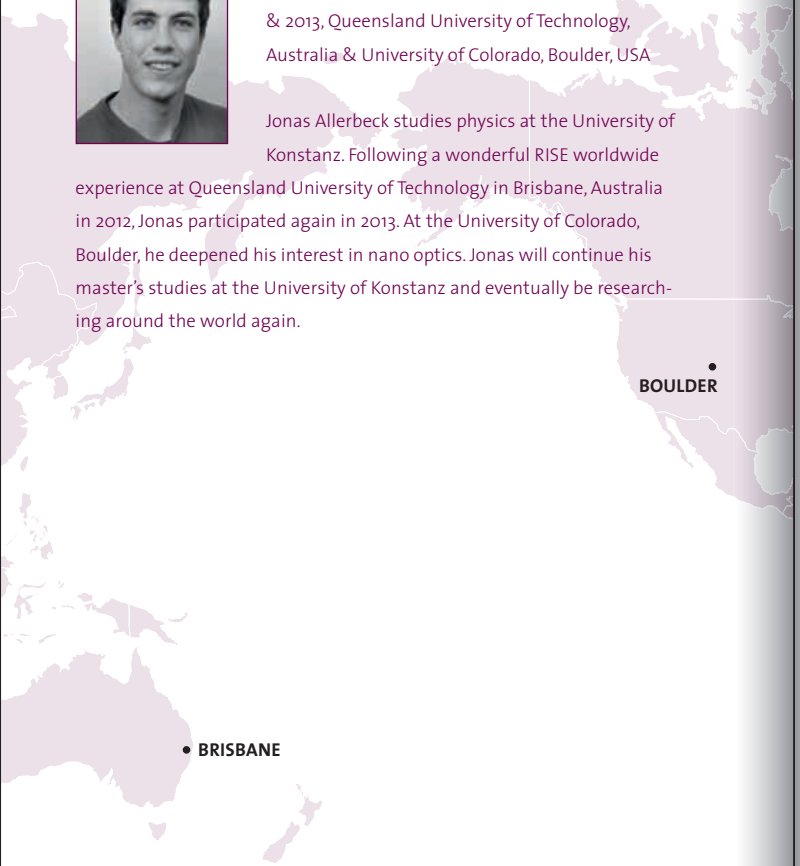
DAAD's RISE worldwide program gave me access to a world of international research and multicultural ways of life. It strengthened my personality, as well as my aim to research in the areas of physical chemistry and biochemistry. Researching and studying in another environment was an important experience and has broadened my skillset. After my second return to Germany, I will continue my master's studies and maybe do my master's thesis abroad. Following that, I plan on getting my PhD and investigate exciting and important areas of science.

RISE worldwide brought me to Australia – it was a great experience. I met new friends and got used to a different culture of life and research.

Torsten John

Jonas Allerbeck, RISE worldwide participant in 2012 & 2013, Queensland University of Technology, Australia & University of Colorado, Boulder, USA

Jonas Allerbeck studies physics at the University of Konstanz. Following a wonderful RISE worldwide experience at Queensland University of Technology in Brisbane, Australia in 2012, Jonas participated again in 2013. At the University of Colorado, Boulder, he deepened his interest in nano optics. Jonas will continue his master's studies at the University of Konstanz and eventually be researching around the world again.



Nano Cups "Down Under"

I am Jonas, a physics student at the University of Konstanz in southern Germany. After four semesters loaded with lectures and plenty of theory, I was longing for more practical insights to my studies. RISE worldwide offered a marvelous opportunity to break my daily routine, gain research experience, dive into a topic of interest, and discover a new continent. The program brought me to the Queensland University of Technology in Brisbane, Australia, where I joined a small research group in nanotechnology for a ten-week internship.

Arriving with nothing more than a backpack, I was hostelling through the city until I found a wonderful shared-house

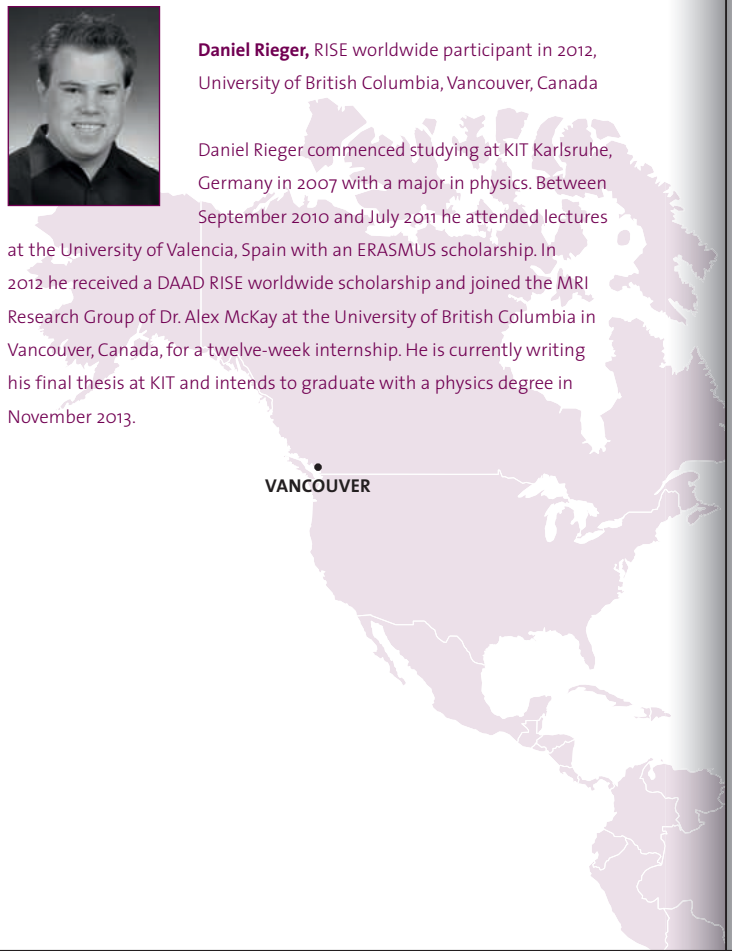
to spend the remaining two months. This might not have been the easiest way to start; however, it certainly proved to be most enjoyable and rewarding in the end. One of my new colleagues had lent me his bike right away, which boosted my mobility around the city and allowed for many great rides in the area. After all that, it took me about two week to get completely settled and to feel at home in my new environment.

At work, I had one week to check out the group and familiarize myself with the research topic, before deciding on my own project. With access to many abundant computational resources, I worked with numerical modeling software setting up my own nanostructures and calculating their optical properties. I started out by reconstructing previously published data to familiarize myself with the software and its algorithmic implementations. While I had no PhD student to directly work with, my supervisor gave me a hand with my work and patiently waited for my ideas and findings. Developing a new project from the start consumed plenty of time, and various set-backs reduced the outcome; although I ran out of time, in the end I had a great learning experience. In addition to my simulations, my supervisor also allowed me to taste the facets and methods of nanoscopic lab work. While the computer cranked its numbers, I fabricated simple gold structures using ion beam lithography and the electron microscope. This combination of theory, simulation and experiment provided a very broad and interesting introduction to the field of nano science.

The contrast between lab work and a vibrant city life, as well as rigorous outdoor trips could not have been greater. Evenings, weekends, and a few days at the end of my internship allowed for many adventures in and around the city. Despite my short stay, I felt comfortable from my first day on. I am very thankful to all my colleagues for their support, thankful for the group's community and after all thankful to DAAD and everyone who made this experience possible. To me, this experience has not been about a specific scientific goal or output. Rather, it has inspired and strengthened my motivation, established a scientific connection between our universities and in the end, I consider it as an important element of my studies and education, and a benefit to international collaboration. I am looking forward to further engagement and collaboration in this area of research.

Daniel Rieger, RISE worldwide participant in 2012, University of British Columbia, Vancouver, Canada

Daniel Rieger commenced studying at KIT Karlsruhe, Germany in 2007 with a major in physics. Between September 2010 and July 2011 he attended lectures at the University of Valencia, Spain with an ERASMUS scholarship. In 2012 he received a DAAD RISE worldwide scholarship and joined the MRI Research Group of Dr. Alex McKay at the University of British Columbia in Vancouver, Canada, for a twelve-week internship. He is currently writing his final thesis at KIT and intends to graduate with a physics degree in November 2013.



Exploring British Columbia

Hi, I'm Daniel and I was lucky enough to receive a DAAD RISE worldwide scholarship for the University of British Columbia in Vancouver, Canada, in 2012.

I'm currently working on my Diploma thesis in physics at KIT Karlsruhe, Germany. Not having spent much time in an English speaking country, I positively jumped at the opportunity to go to North America. The only thing I regret is that I did not have more time to travel before or after the internship.

For three months, I was working in the MRI research group at the university hospital. I wrote several MATLAB programs to evaluate MRI images for the investigation of the influence of

high altitude long term stays on the cerebral blood flow reactivity. Basically, this means that a subject was given several different breathing gas mixtures during a MRI scan. This was repeated after an extended stay in Nepal on 5000m altitude. The gas mixture stimulates the blood flow in the brain. This research might help in identifying people with an increased risk of a stroke.

Since the group I worked with needed volunteers all the time, I was also scanned a couple of times. I'm a proud owner of MRI pictures of my brain now, which is absolutely awesome, I assure you!

This internship introduced me to the world of scientific research and although I'm currently working in a different field, I learned a lot. Plus, the people there were great. So, I had a very good time. Back in Karlsruhe, working on my Diploma thesis I realize what I learned: Knowing how to approach a problem and how to get to know new colleagues goes a long way toward an effective work flow and a nice working atmosphere. Doing a PhD after my Diploma has become much more likely for me now.

Of course, the experience in the foreign country was just as important to me as the work. I really came to love Canada and the Canadians. I did a lot of traveling, mostly with other people from the RISE worldwide program. There are so many places where you can experience Canadian nature by hiking, surfing, scuba diving or mountain biking. A lot of those places are

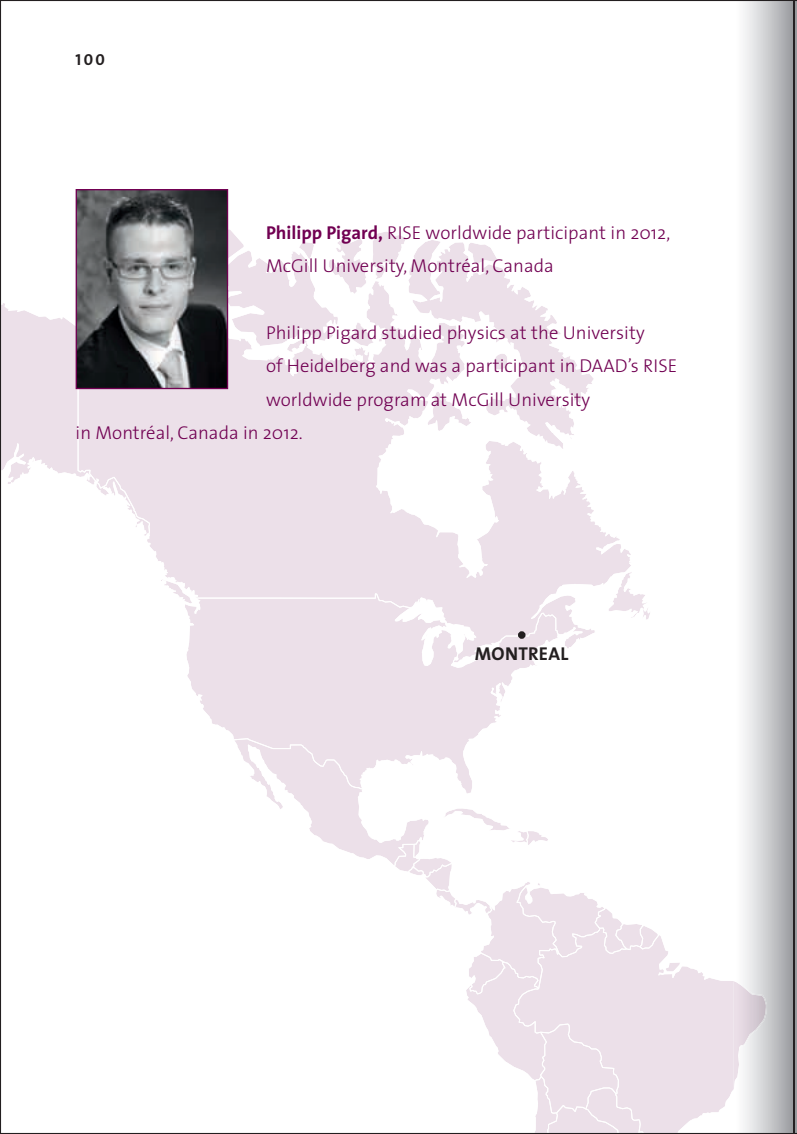
accessible by public transport so it's that much easier to spend your whole weekend outdoors. Vancouver itself has much to offer, as well.

To be quite honest, most of the time I got up much, much earlier on the weekends than during the week just because there was so much to do and to see. And no, I did not go to work all that late, really.

Fancy a week in the Canadian Rocky Mountains with black bears and ice fields, a three-day-stay in Whistler (the world's best ski and mountain bike resort) with plenty of glacier lake hikes or just a solid night out with friends at a pub in Downtown Vancouver? Go for it!

Philipp Pigard, RISE worldwide participant in 2012, McGill University, Montréal, Canada

Philipp Pigard studied physics at the University of Heidelberg and was a participant in DAAD's RISE worldwide program at McGill University in Montréal, Canada in 2012.



High Energy Research in Canada

Thanks to the RISE worldwide program, I was able to work with the largest experiment ever built by mankind: the ATLAS detector located at the Large Hadron Collider operated by CERN in Geneva, Switzerland. The fact that ATLAS was one of the two detectors responsible for the discovery of the Higgs-Boson just weeks before my internship greatly increased my excitement about the opportunity to participate in current particle physics research.

However, I was not working in Geneva, but rather with the high energy research group of McGill University in Montréal, Canada. This already emphasizes that modern high energy

particle physics is truly a global effort that is carried out by international teams. Thus it necessitates a good awareness for cultural differences.

Prior to my RISE worldwide internship in Montréal, I studied physics at the University of Heidelberg with my particular interest in particle physics just emerging. Having just finished the sixth and final semester for the bachelor's degree, I considered the internship as an excellent opportunity to learn more about the reality of physics research. Academically, I was able to further develop my understanding of the ATLAS detector and, more generally in particle physics. Another important aspect of my stay in Montréal was the insight into the organization and collaboration required to run the CERN experiments, which involve more than 10,000 physicists.

Another aspect of my DAAD experience was the opportunity to get to know the culture and spirit of the host country. While in Montréal, I watched the student protests and demonstrations against the increase of the tuition fees in Québec. Observing these circumstances and learning about the financial concerns of my fellow students, made me appreciate the many supporting institutions for students in Germany. Being an outdoors person, I used the weekends to explore the many national parks surrounding Montréal. Living in Québec also allowed me to speak French on an everyday basis.

Drawing from my research experience obtained in Montréal, I am now continuing my education at Heidelberg in the

master's program. Thanks to the RISE worldwide internship, I now have a clear understanding of how to pursue and train for future work in particle physics. I look forward to applying my knowledge obtained during my internship within my master's thesis in particle physics.

I highly recommend the unique opportunities offered by the program to anybody looking to gain research experience abroad.

Zooming in on an unknown frog species, Páramo, Andes Mountains

Luisa Sonntag, RISE worldwide participant in 2012, University of New Orleans, Louisiana, USA

Luisa Sonntag is studying chemistry at KIT Karlsruhe. She participated in the RISE worldwide program in 2012 and spent eight weeks in New Orleans, USA. After her return, she continued her studies for the Diploma Degree.

Improving Solar Cells with the Sound of New Orleans' Jazz

Hello, I am Luisa and I was born and raised in the German state of Brandenburg. After finishing high school I spent one year being an au-pair in Boston. When I returned to Germany, I started studying chemistry at KIT Karlsruhe. In summer 2012, DAAD's RISE worldwide program gave me the opportunity to go back to the United States and do an eight-week internship at the University of New Orleans in Dr. M. A. Tarr's research group. Since I have always been a very inquisitive person, I was happy to learn how solar cells work. The name of my project was "Improving Quantum Dot Solar Cells with Metal Nanostructures." Not only was I "doing chemistry," but I was also introduced

into assembling a whole solar cell, which included cutting glass pieces, drilling holes and using silver paint. When the solar cells were ready for usage, I was testing their efficiency with a solar simulator and could see how light was in fact converted into energy. Doing a lot of other tests, showed how single facts come together and change how good or bad a solar cell works. It was very interesting to see that and trying to make improvements. Preparing the quantum dots, I was using the SILAR method and at the end, I was even putting gold nanoparticles inside the cells to improve their performance.

My professor gave me freedom of action, but discussed my results with me weekly. I learned how to research independently and how to do structured work. I felt very welcome in his group and met many interesting people from all over the world (e.g. India, Iran, and France). During my time there, tropical storm Isaac was hitting New Orleans and one of the PhD students took me to her family-in-law, where we stayed a few days and waited until everything calmed down. I never expected to have such an experience. Of course, it was scary, but also interesting to see how a city prepares for an upcoming storm. During these days I made real friends and will definitely go back to New Orleans to visit them. After finishing the project I spent three more weeks in the US, travelling from New Orleans to New York City passing the Great Smoky Mountains, Washington D.C. and Boston.

The last part of my studies is coming up now. Since I was able to get credit for the internship at my university, I also got the

opportunity to give a presentation about my work. The German group was very interested and discussed my results.

I am now preparing for my final exams for the Diploma degree in chemistry. The internship showed me how much fun research can be, but also what obstacles you have to overcome. Still, I am planning on getting a PhD in chemistry. The field of inorganic chemistry is still very attractive for me, since many more discoveries can be made.

Annika Grimmer, RISE worldwide participant in 2012, University of California, Berkeley, USA

Annika Grimmer finished her bachelor's degree at the University of Heidelberg in 2012. Currently she is working on her master's in molecular biosciences at the University of Heidelberg. In 2012 she received a scholarship in DAAD's RISE worldwide program and did a three month research internship in Berkeley. She is planning to eventually obtain a doctoral degree.

Berkeley & Biofuels

I am currently studying for my master's in molecular biosciences at the University of Heidelberg in the first semester. Last summer I had the unique opportunity to do a research internship at the Energy Bioscience Institute in Berkeley. The small city of Berkeley, on the east shore of San Francisco Bay became my home for three months. From the first day on, I was impressed by the open and friendly people I met there. I did my research project in a laboratory group of the Energy Bioscience Institute, which tries to help the world transition from fossil fuels to a balanced stock of sustainable and renewable energy sources (EBI magazine: BIOenergy Connection Spring/

DAAD's RISE worldwide program is the perfect opportunity to gain firsthand experience in an international scientific environment. During my time in Montréal I was able to deepen my interests and acquire valuable skills that I still benefit from. Furthermore an internship with RISE worldwide is a wonderful way to spend the summer in an exciting city.

Johannes King, RISE worldwide participant in 2011
at McGill University, Montréal, Canada

Summer 2012). For me it was the first time I had the possibility to work on my own research project alongside a postdoctoral supervisor in a laboratory. I was able to improve my laboratory skills enormously, but also to experience the lab routine in another country within an international research group. I was working in the Pauly Lab, which is involved in identifying optimal plant feedstock for biofuels production. The goal of my project was to gain further insights about plant cell wall O-acetylation. Since I was able to work on my "own" project, which was supervised and organized very well, I decided to combine my RISE worldwide internship with the practical work for my bachelor's thesis. I performed all experiments at the Energy Bioscience Institute, and completed my bachelor's degree by writing the thesis when I was back in Germany.

Besides working in the lab on my project, I had the opportunity to participate in several social events like a lab picnic, social hours, lunch seminars and a hiking tour. I enjoyed joining these events and got to know a lot of other nice people working at the Energy Bioscience Institute. Moreover, I met many other international scholars at UC Berkeley during social events (e.g. coming together at a bar) organized by the VSPA (Visiting Scholar and Postdoc Affairs) program. Thus, I also made some new friends with whom I enjoyed several trips during the weekends. We explored San Francisco, the Bay Area and the incredible variety and beauty of the Californian landscape together (Lake Tahoe, Yosemite National Park, Highway One).

Overall, I had a great time in Berkeley and at the Energy Bioscience Institute. I got to know a new country with a different mentality and also improved my theoretical and practical know-how in molecular biology. Working with the lab group made for a wonderful internship experience and had me fall in love with California. My plan for the future is to finish my degree in Heidelberg; meanwhile hoping that another possibility to visit Berkeley will arise one day, e.g. for another internship or a PhD program.

Investigating on gene expression in potatoes after heat stress

Dr. Tina Bell, RISE worldwide supervisor 2011 and 2013, The University of Sydney, Australia

Tina Bell completed her undergraduate and post-graduate degrees in botany in Western Australia at the University of Western Australia. She then took up a postdoctoral position in South Africa at the University of Cape Town in 1997. She returned to Australia to work in the forests of eastern Australia and is now a Senior Lecturer in Fire Ecology at the University of Sydney.

SYDNEY

Effects of Fire on Endangered Plant Species

In my previous academic positions at the Universities of Western Australia and Melbourne I hosted a number of international students from Spain, France and the Netherlands. These partnerships have all been very rewarding and on several occasions, very fruitful; one of the intern students I hosted in Victoria has since returned to complete a PhD with me in New South Wales and I have been invited to teach in Spain at the university where another of my interns was studying. In 2010 when I started my new position at the University of Sydney, I wanted to continue this tradition. I was introduced to the DAAD RISE worldwide program by my husband (who is German and

RISE worldwide was an unforgettable experience for me. I made new friends, developed myself further on a personal and professional level and improved my English. The highlight of this program was the alumni meeting in Karlsruhe, where I got to know a lot of interesting students with different backgrounds.

Catharina Melzer, RISE worldwide participant in 2012
at the University of Waterloo, Canada

has held several DAAD stipends) and thought it would be the ideal way to catch the attention of international students.

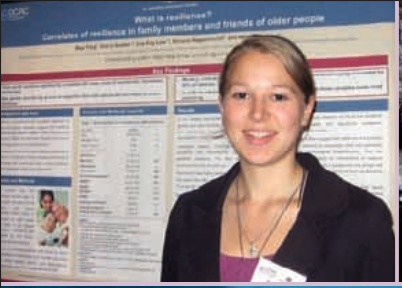
The first project I submitted to the DAAD RISE worldwide program for study in 2011 was to investigate how the natural symbiosis between plant roots and fungi is affected by bushfires. The process of submitting a project and reviewing the candidates was straight forward. Questions arising during the selection process were answered promptly by the very friendly staff of DAAD. The most attractive features of the DAAD RISE worldwide program is the very professional manner in which it is run, the way in which the students are supported and the follow up after the students have completed their internship.

Through the efforts of my first DAAD RISE worldwide intern, the project was very successful. Microscopic work was done to identify mycorrhizal fungi in plant roots. Other soil analyses including measurement of soil bulk density, pH and soil moisture was used to understand root distribution within the soil profile. This type of base-line information is particularly important for bushfire-related studies. If roots and their mycorrhizal fungi are located in the upper soil profile then there is greater chance that they will be affected by heat produced by the bushfire. The research had additional relevance as it was done in an endangered plant community in the Sydney Basin region. The results from this research have helped our understanding of the role of mycorrhizal fungi in a highly fragmented and threatened plant community.

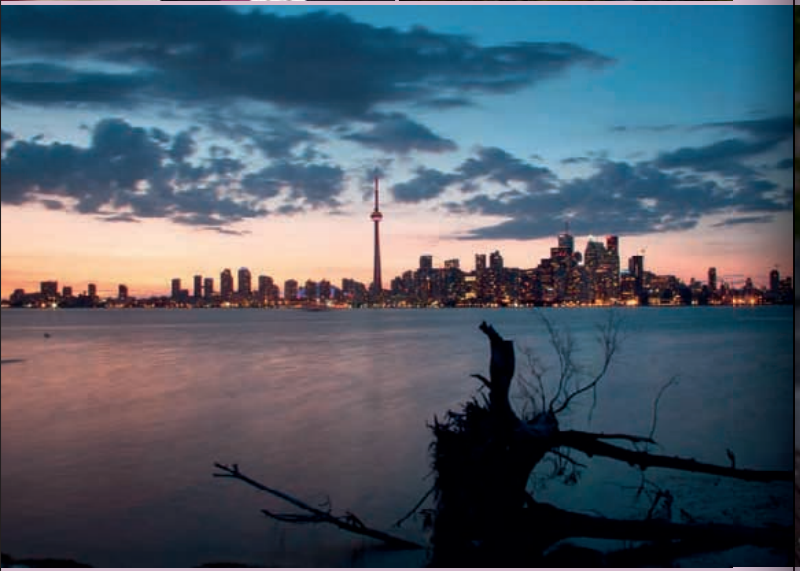
I was so impressed with my first intern and with the DAAD RISE worldwide program that I submitted a second project proposal in 2012. This one was about investigating the leaf anatomy of Australian alpine grasses in relation to their rates of photosynthesis. The process of submitting a project and reviewing the applicants was just as effortless and trouble-free as the previous year. Unfortunately the student who was successful in gaining an internship to do this project could not come to Australia. I resubmitted the same project for study in 2013 and was astounded by the number of applications I received. The process of short-listing was difficult this time but only because all of the candidates were of very high quality and had excellent recommendations.

My second DAAD RISE worldwide intern is in Australia at the moment and she is learning new techniques, meeting new people (including other DAAD students) and seeing the sights in Sydney. Both interns have integrated effortless into my research team and the wider community within the faculty at the University of Sydney. I am convinced that encouraging the interns to participate in other research and social activities within my group and in the Faculty will further their personal development and extend their (already impressive) academic skills.

On the edge of a cliff in the Blue Mountains, Australia


What is resilience?
Correlates of resilience in family members and friends of older people


2













Sometimes in life, if we are lucky enough, something happens to us that is so intense and interesting and wonderful that henceforth we carry it with us as a part of ourselves. For me the DAAD RISE worldwide internship really was one such experience.

Daniel Rieger

*

It's all about the people you meet – whether they teach you how to prepare and eat a cactus or take you flying and make it possible to touch a cloud with your own hand!

Magdalena Hock, RISE worldwide participant in 2011
at The University of Texas at El Paso, USA

*

The scholarship gave me the opportunity to take responsibility for my own scientific project and the means to carry it out successfully. I had a lot of new experiences and met truly amazing people.

Stefan Mitzinger, RISE worldwide participant in 2011
at the National University of Singapore

*

A journey in science: RISE worldwide opened the door to scientific and cultural exchange at an early stage.

Ariane Papke

The experience that I had in Australia during my internship at Victoria University was in one single word "unique."
It was a valuable experience on an academic level and on a personal level. I learned how researchers/universities in other countries work and participated in a very interesting research project. The RISE worldwide program helped me mature and change perspectives; it was challenging and yet fulfilling and three sentences do not do it justice. Thank you for the opportunity!

Enis Akcabelen, RISE worldwide participant in 2011
at Victoria University, Australia

*

Being two months in the laboratory of plant physiology at the University of São Paulo not only let me gain insight into practical research work, but gave me the chance to make friends from a different culture. An experience that I recommend to every German bachelor's student.

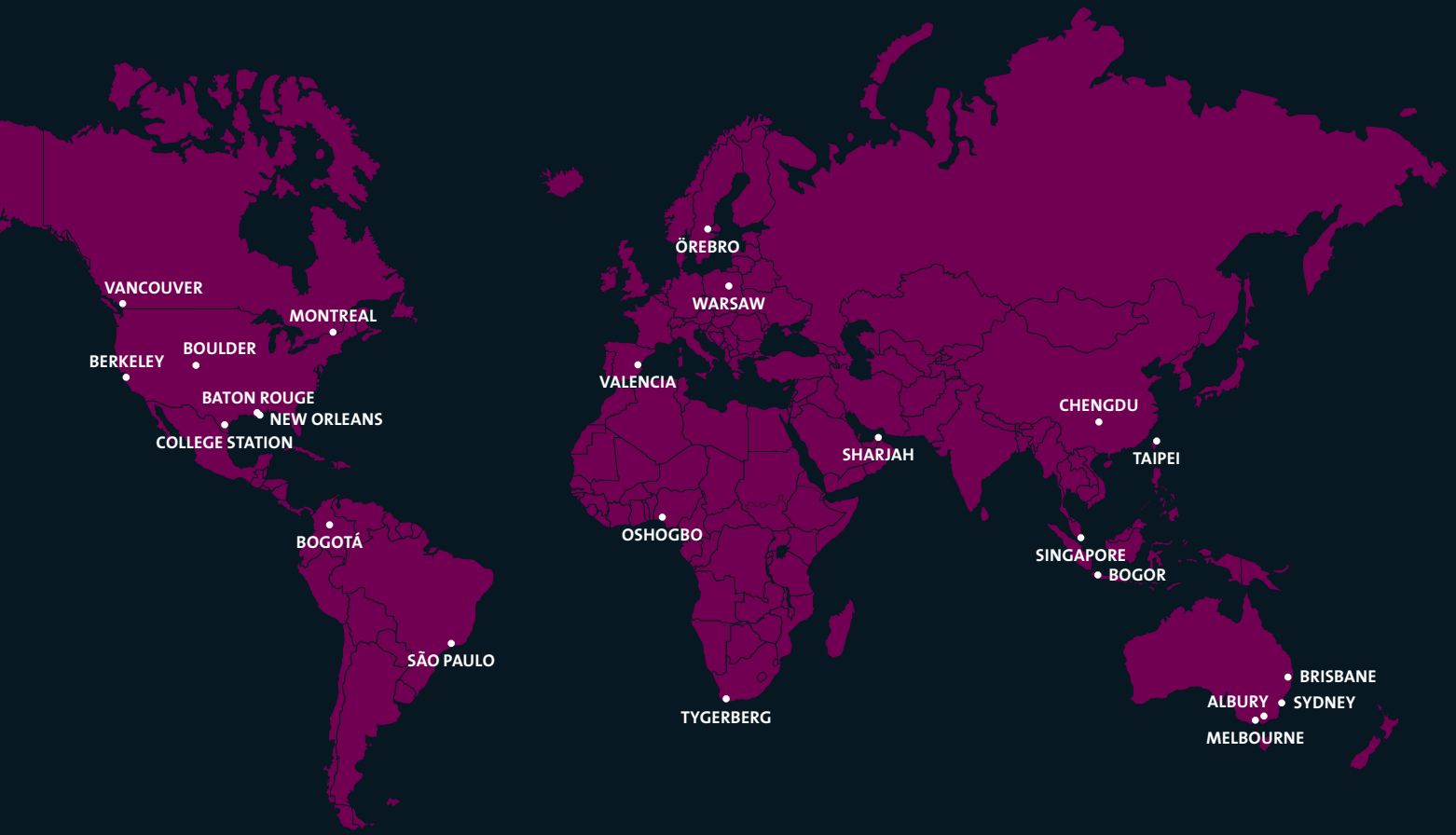
Johannes Dreher, RISE worldwide participant in 2012
at the University of São Paulo, Brazil

Program Support
RISE worldwide is supported by the Federal Republic of Germany through funding from the Federal Ministry of Education and Research. We would like to thank them for their generous support, without which this program would not be possible.

http://www.bmbf.de/en/index.php

Host institutions ▶

RISE worldwide interns in 2011 and 2012


VANCOUVER
MONTREAL
BOULDER
BERKELEY
BATON ROUGE
NEW ORLEANS
COLLEGE STATION
BOGOTÁ
SÃO PAULO
ÖREBRO
WARSAW
VALENCIA
OSHOGBO
TYGERBERG
SHARJAH
CHENGDU
TAIPEI
SINGAPORE
BOGOR
BRISBANE
ALBURY
SYDNEY
MELBOURNE