Linking your home to the world

An issue about openness and internationality at the TUM
A story behind every name

ny community can only profit from openness and diversity – that I am convinced of. And that is what I appreciate so much about the TUM Network, which brings together people from a total of 139 countries and 165 different courses of study. Of the 39,081 students at TUM, 22 per cent come from abroad. And the TUM has 7 locations worldwide – in Singapore, Peking, Brussels, São Paulo, Cairo, Mumbai und San Francisco. Behind every name there is a life story, behind every telephone number a new way of looking at the world.

This issue is dedicated to the subject of openness and internationality, something that nowadays seems to be more important than ever before. Many members of the Network have contributed to its success. TUM Alumni Dr. Reinhard Ploss, Chairman of the Board at Infineon, met with TUM student Ingrid Sánchez Jiménez from Mexico, to talk with her about internationality as seen through the eyes of a globally operating company (p. 14). Prof. Dr. Alice P. Gast, President of Imperial College London, explains why scientists can only become better when they bring together their culturally different way of doing things in order to solve problems together (p. 20). In Voices of TUM, TUM Alumni and students tell us what openness means for them personally (p. 8). I hope you find many inspiring moments reading this issue. Be amazed at how diverse your TUM Network is.

Editor of KontaktTUM
Sabrina Eisele

Openness means cooperating in shaping the future.

Roland Lacher and his wife donated a generous sum to the TUM University Foundation from their private funds. You can also support your Alma Mater.
www.tum-universitaetsstiftung.de

The talents they develop here are a huge capital and potential for the future.“

Roland Lacher
TUM Alumni, entrepreneur and benefactor

The TUM is 100% for a cosmopolitan outlook and cultural tolerance. It supports the Rectors’ conference “Weltoffene Hochschulen – Gegen Fremdenfeindlichkeit” (Cosmopolitan Universities – Against Xenophobia).
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5 answers by the President on the topic of openness

1. A longing for the new

Openness towards the new, and more than that - a longing for the new - is the fundamental outlook of science. As the university’s teaching mission is science-oriented, it must always keep alive and breathe new life into an atmosphere of intellectual openness across the generations. This spirit is naturally open to internationality, which it cannot help but be within a scientific ambiance. Dependent on the possibilities of the era, today’s TUM became international soon after its foundation (1868): back then students came in droves from Eastern Europe, mainly Russia, and became good engineers and chemists with us.

2. With eyes open and an open mind

Openness and internationality are what keep science alive. The researcher’s openness needs open eyes and an open mind to keep curiosity alive and arrive at the right questions – a fundamental prerequisite for successful scientific research. The international attitude of the researcher requires a pure heart that respects the cultures of foreign countries, thus making it possible to tune into their scientific understanding. An attitude of internationality is only sustainable if one establishes a connection between one’s homeland and the world. That is the difference to mere “science tourism”, which has been on the rise in recent times.

3. Overcome habitual ways of thinking

Openness is character-specific and not science-specific. Indeed, it is a fundamental characteristic which we can observe again and again in our children and grandchildren. In difficult, conflict-ridden situations in particular, openness has proved its worth, because it is what lends argument its atmosphere. I have seen this on many occasions, when we had to overcome our habitual mode of thinking at our university in order to make progress. Two examples are the structural reform, above all in Weihenstephan, and the TUM experiment clause, which ultimately led to the amendment of the Bavarian university legislation in 2006. But also the foundation of new faculties with the new, unusual cultures of their subject areas are part of this experience. Just think of the Faculty of Economic Sciences or the TUM SCHOOL OF EDUCATION. We have learned there that openness also needs hard work and stamina to be effective.

4. Secure the future

If you do not look into the world, you will not recognize the best standards in accordance with which a university of rank must orient itself. An international university is part of the worldwide research community - in different focuses. Depending on the subject, there are of course legitimate differences between the arts & humanities, the engineering sciences and the natural sciences. If TUM was not international, we would be robbing our graduates of their future. This is because the professional and employment markets are international today. With globalization, the sphere of activity that universities must cover has expanded enormously. Universities that are not internationally networked will soon no longer be of interest for very good students – nor will universities in which English is still seen as a foreign language!

5. Roots and wings

Openness involves a new start daily, something that is also a core characteristic of a successful researcher. Often-trampled pathways are foreign to the world of science. They are, however, not to be mistaken for an own identity that is rendered more stable by openness and an international attitude. The motto here is “roots and wings” - then a university is on the right track.
Voices of TUM

TUM Alumni and students tell us what *openness* means to them personally

TUM Alumni Woidy Hammami (Mechanical Engineering and Management 2013) has already been in the USA, China and Spain with his work and privately he is a passionate backpacker. This photo shows him in the desert in Morocco. Openness to him, both privately and in his job, means working and making decisions with people together and not over their heads. It is also important, he says, to question cultural clichés.

Read more about what Woidy Hammamis has done in life in this issue on page 32.
**Voices of TUM**

**Be curious**

“What I love most about my job is the openness of the people on site in Burkina Faso. The glasses are produced by locals. They were eager right away to work on our project although they didn’t even know us. That’s already something special. People in Africa are generally characterized by a keen and very positive sense of curiosity. Everything has to be tried out and explored. Even when I bring food from Germany, mostly gummy bears or other candy, everyone wants to try them. More than 150 million people in the world need glasses, but can’t afford them. So there’s a lot to be done.”

Jakob Schillinger studied Management and Technology at TUM. Forbes business magazine recently placed him on their list of “30 Under 30 Europe – Social Entrepreneurs”. He is one of the founders of the EinDollarBrille (One Dollar Glasses) association, which trains people in Africa to produce glasses.

**Overcome barriers**

“They say that, in Germany, foreigners tend to keep themselves to themselves. In my opinion, the same is true in China. I experience the invisible border between German and Chinese students on the campus of Tongji University in Shanghai every day. As a professor and student adviser I make efforts to make this border disappear. I organize events at which Chinese and German students can meet up and discuss things. To do so, they not only have to overcome language barriers, they also have to show courage and have a positive attitude. Anyone who is not willing to look beyond the end of his nose greatly diminishes the sense of doing a student exchange abroad.”

Prof. Dr. Ying Zhang gained her doctorate from TUM in Civil Engineering and is the contact partner for the TUM Network in China. She is one of the founding members of Women of TUM, the network of female scientists, graduates and students. At Tongji University in Shanghai, she is Professor in the Faculty for Transport and Communications.

**Be open to innovative technologies**

“I would like to see more openness towards innovative technologies that benefit the economy and society and with which innovation cycles could be shortened. Germany is one of the world’s most trend-setting research nations, especially in future-oriented fields like information technology. Paradoxically, the Germans in particular are often hesitant or even skeptical in the adaptation of innovations. I am also convinced that a society becomes more open when every person in it has the opportunity to get education and training that reflects his strengths and interests. I think we could do a great deal more to achieve equal opportunities across social and ethnic boundaries.”

Bastian Nominacher achieved his Master’s in Finance and Information Management at TUM. He is founder and managing director of Celonis, a TUM spin-off company, which has developed a process mining technology with which company processes can be visualized in real time.

**Think creatively & unconventionally**

“Openness is often understood as honesty and decency. I personally see this term mainly as the willingness to get to grips with people, situations and topics without preconceived ideas and without fear of the unknown. This also tells us what the natural enemies of openness are: thinking in stereotypes and judging too hastily. If I wasn’t open to new things, I would soon come up against my limits as the Liaison Officer for TUM in San Francisco. In Silicon Valley, in particular, openness also means creative, unconventional thinking ‘outside the box’ and looking for new, sometimes apparently Utopian solutions. This kind of openness is a daily challenge for me and an enrichment at the same time that I would only reluctantly let go of.”

Dr. Dolores Volkert has been Liaison Officer since September 2015 of TUM San Francisco, the TUM branch in the USA. She supports the university in implementing internationalization strategies for the North American region.

Think creatively & unconventionally
"I was very surprised last year about how open and engaged many Germans showed themselves to be in the refugee crisis. People always say we are so uninvolved – especially the younger generation – and that all we do is sit in front of a computer. But then, in summer, so many people from Munich went to the train station to help the refugees. It’s a great sign that there were far more students who wanted to act as buddies than there were refugees who needed to be helped."

Lisa Pfetsch and Andrea Fölbach have been involved since October 2015 in the TUM Program “Buddies for Refugees”. Lisa Pfetsch studies Clinical Medicine and supports a young visiting student from Libya who later wants to study Architecture. Andrea Fölbach studies Civil Engineering and acts as a Buddy for Mohamad, a young visiting student from Syria who would like to study Informatics.

Lisa Pfetsch:

Do not be scared of the unknown

"For me openness means that you have the ability to see something interesting in everything that is not familiar to you. It was very enriching for me to meet and spend time with a refugee family. My visiting student came to Germany with her father and brother, her mother is still in Libya. I learn a great deal from her, alone from the fact she is Muslim, and has a different religion to mine."

Rethink how we educate

"I think there is a great deal of openness in the world of science and industry. In middle and higher positions, it makes no difference at all what you look like or where you come from. The most important factor is your qualification. There are always exceptions, especially in traditional companies where hierarchies are still quite rigid. What worries me is the early decision in junior school about a child’s future – either grammar school and therefore university studies, or middle school and therefore an apprenticeship. We urgently need more openness and flexibility in our education system. Germany needs a lot of engineers and they can be trained here if the right framework exists. Every single person we lose because of this existing system will cost us dearly in the future, instead of them making a contribution by working and contributing their know-how."

Dr. Hachim Haddouti gained his doctorate in Informatics at TUM and works as an IT Manager in the BMW Group. He is also a visiting lecturer at Al Akhawayn University in Morocco and is co-founder of a skills network among the Moroccan diaspora in Germany.

Make knowledge accessible

"Digitalization opens up a great many opportunities that we urgently need in science. That is why the aim of the Open Access Policy to make knowledge freely accessible worldwide is of special interest to me. Digitalization is not only to be understood as a transition from analog to digital, but must be seen as a process that restructures many processes in general. It’s not about saving information online instead of printing it on paper, but about rethinking the entire process chain with the possibilities offered by modern technology. There are still a number of boundaries and prejudices that need to be overcome here. It is also about the official use of media – far too often many long emails are sent just to coordinate the smallest details, despite the fact that a short phone call or talking directly may clear the matter up in seconds."

Hans Pongratz studied Informatics at TUM and today he is Executive Vice-President at TUM for IT Systems and Services (CIO). He was involved in bringing an Open Access Policy to TUM already at the beginning of 2014, which aims to promote unrestricted access to scientific publications via the Internet.
"Come back home with a new way of thinking"

He is boss of one of the leading semi-conductor companies, an engineer out of passion and a former TUM student. That is why Dr. Reinhard Ploss, CEO of Infineon, took the time to talk to student Ingrid Sánchez Jiménez. Internationality is a topic close to both their hearts.
Dr. Reinhard Ploss

(PhD of Mechanical Engineering 1980) has been CEO of Infineon since 2012.

Dr. Reinhard Ploss joined Siemens / Infineon in 1986 and worked as a process engineer for chip production in Munich. In 1992, chip production relocated to Villach in Austria, where he was responsible for technology from 1993 onwards. In 1996 he returned to Munich and took over the management of the power semiconductors branch with a focus on development and production. In 1999, Reinhard Ploss became head of the Industrial Power branch and CEO of epasic GmbH Co. KG, a subsidiary of Infineon. In 2000, he took over the management of Automotive & Industrial Business. From 2005 he was responsible for development and production as well as the operational management of the Automotive, Industrial & Multimarket segment. In June 2007, Reinhard Ploss was appointed to the management board of Infineon, responsible for production. Reinhard Ploss is married and has one child.

Ingrid Sánchez Jiménez: For the chipmaker Infineon, with more than 35,000 employees from 81 different countries working worldwide, over half of the sales are generated in Asia. In such international teams, there are bound to be a lot of challenges, right?

Dr. Reinhard Ploss: The language, thoughts and culture may be slightly different, but when you work together every day, this difference is not a big issue. You just have to be aware of each other. This kind of awareness is useful even if you are only amongst Germans, since we assume that we always understand the other person, and yet they often mean something different. This ability to empathize with others is a great strength that we gain from intercultural experience. And it is also important that there are people who understand the context as well as the details. Who would have thought at the beginning of the energy transition in Germany, that the biggest problem is not so much in the construction of solar panels and wind turbines, but in the new, far more complex system of energy management and the effective use of renewable energy.

Ingrid Sánchez Jiménez: That’s one reason why I’m in Germany, because the energy transition is here. The issue of energy efficiency is really very important for everybody. If developing countries would rely more on energy efficiency, it would be easier, but they use old technology because it is cheaper. Therefore, it is also good if young people come here and find out about new technology.

Dr. Reinhard Ploss: Is that why you opted for the Power Engineering course?

Ingrid Sánchez Jiménez: Yes, later I’d like to work in the field of renewable energy and energy efficiency. Some aspects of electrical engineering were not dealt with in detail in my Bachelor’s program, and so I wanted to learn them directly in English. I hope to work in international wind energy projects after my studies. In my Master’s program there are a lot of international students and it is exciting to see all the different perspectives. Do you know what would be interesting for me? China is becoming stronger in the semiconductor industry. What are the main challenges for you when cooperating with a Chinese company?

Dr. Reinhard Ploss: They are, of course numerous, starting with the language. When I travel in China, I always need a translator, and obviously a lot is already lost in the mutual understanding. That is why we rely on our local employees to explain what was meant. But you also have to understand the motivation of the people, who are very different to our own. The government is eager to bring the technology and added value into the country. Then there is the pursuit of economic prosperity which drives people there so much. This means that in China many things develop more in the short-term than we are used to in Germany. For example, we had contracts with some emerging companies there, but then suddenly individual companies were no longer able to finance their growth and everything had to be changed again. In Germany you meet a customer, make a plan and carry them out. In China - in my experience - you need to go into the negotiation, look around, take another step and look around again. You can’t make a plan from the outset, you have to learn how to plan, and that might also mean “No deal”.

Ingrid Sánchez Jiménez: So how can Infineon pursue strategies in China at all?

Dr. Reinhard Ploss: Ganz interessant ist, dass dort die Hochschule eine andere It’s really interesting that the university there has a different meaning than in Germany. For us it is mainly responsible for education, science and research, in China there is a close cooperation with companies on top of that. Universities are important partners for development. For us that means that we work with a number of universities to find out what the trends in industry are. In China, there is a huge demand for semiconductors for renewable energy, electric cars or trains. If you want to do business, the great challenge is to identify: Which company has the best future prospects? Who should I cooperate with? What are the main trends and political goals? To do all this you need locally-based Chinese colleagues, because it is difficult to assess for strategists in the central office. As a company you have to be capable of thinking and acting as a local company. To do this you have to understand the culture, have networks and, above all, be very open. And you need to be able to tolerate uncertainty, that is definitely something that you need.
Ingrid Sánchez Jiménez: Is it essential for students to have foreign experience these days?
Dr. Reinhard Ploss: In the field of education, in particular, I believe it’s essential to emphasize the international aspect. That could come with having our own students spend time abroad or giving foreign students the opportunity to visit German universities. Young people should use their study time well; I think it’s better that they see a bit of the world and learn from it, than just rushing through their studies and then ending up with a lot of dry, dusty theory.

Ingrid Sánchez Jiménez: Is there a country that you would particularly recommend?
Dr. Reinhard Ploss: You should visit countries that influence events and whose culture is very different from your own. There’s the USA, for one, and Silicon Valley in particular, which is still a real center for trends. It is exciting to experience the kind of thinking that prevails there. In Germany we tend to think for a long time, plan thoroughly, and then act. And of course there’s a value in that. But in the USA you try something and it works, or if it doesn’t work you just try something different. The ideal is to have a symbiosis of both, choosing the right method depending on the problem and the situation.

Ingrid Sánchez Jiménez: And what about Asian countries?
Earlier we talked a lot about China.
Dr. Reinhard Ploss: Naturally China remains very exciting as an important growth region. But Japan and Europe also have plenty to offer. I think that France, Spain, the UK – to name just a few examples – are also highly interesting and highly diverse, culturally. For me it’s not about young people coming home having experienced different technologies, but that they return with a different cultural experience, with a new way of thinking.

Ingrid Sánchez Jiménez: We’ve talked a lot about the situation in other countries, but how important is it that Germany brings in international workers?
Dr. Reinhard Ploss: I think it is highly important. The people who come to us tend to be open-minded. Someone who goes to another country is taking a chance. Inflexion has many employees from other countries whose diverse skills are very important for us. I can only applaud the fact that we have foreign students in Germany. It provides benefits in two directions. When students return, hopefully on the one hand they return with a bit of enthusiasm for us, and later maybe they can form a bridge in their homelands. On the other, it allows German students to gain international experience even if they don’t go to other countries themselves. The important thing is that students exchange ideas on intercultural issues – how do you do that? How would you approach this? What do you think works here, and what other methods could we use?

Ingrid Sánchez Jiménez: What did studying at TUM mean to you?
Dr. Reinhard Ploss: Studying was a time for learning how to make your own way. The engineering degree was structured to a certain extent, but ultimately you had to decide for yourself how long you studied, and what else you did alongside it. You had to take care of a lot of things for yourself. This experience, having to stand on my own two feet, was very exciting for me at the beginning. But then I got through my studies pretty quickly, because I had to earn money. If it were up to me, I would do it differently today. My doctorate period was more formative for me; they were years of apprenticeship that I wouldn’t want to have missed.

Ingrid Sánchez Jiménez: In what sense?
Dr. Reinhard Ploss: I started working early on as an assistant at the professorship for Process Engineering with Professor Mersmann, and that’s how my doctorate came about. When I look at it from my current perspective, from a technical point of view it wasn’t so important for my career in the industry. But what was important, and still is, is that I learned to develop in a subject, I had to give and prepare lectures, make myself understood, even if there was a lot of technical detail in many places. And if you ask me what the greatest challenge in my position is, it’s being able to say something with simple words that anyone can understand. In this sense I profited greatly from my doctorate.

Ingrid Sánchez Jiménez: It sounds like it was a strenuous, but highly positive time.
Dr. Reinhard Ploss: Yes, but it was also a time in which you got to experience the highs and lows of working life. Later when you’re in the company it isn’t so easy to fall flat on your face and get back up again. The experience of dealing with a situation like that helps you later on. And anyway, there was a lot of freedom. I think back very fondly on that time and so I would say to any student, “It doesn’t matter whether you do one semester more or less, gain experience!”
Alice Gast knows how valuable international cooperation is. Today President of Imperial College London, she worked as a post-doc with French colleagues at NATO in Paris. A native of the USA, she later worked on a research project together with colleagues from Mexico and Germany. The greatest difficulties turned out in the end to be of the greatest benefit. As a TUM Ambassador, Alice Gast is an international ambassador for TUM in the area of science and research.

Prof. Dr. Alice P. Gast
is President of the renowned Imperial College London and a TUM Ambassador since 2015.

»The language of science is international«
Many of the most important scientific achievements are the result of international cooperation. In 2003, the SARS coronavirus was identified with unprecedented speed – by a team working in 11 laboratories in nine different countries. And scientists from all over the world met up at the Large Hadron Collider in Geneva to search for the Higgs-Boson. These are only two examples that demonstrate for Alice Gast how innovative science can be when researchers with different cultural approaches look at a problem together. When she was working together with Mexicans and Germany on a research project, the respective approaches at first seemed incompatible with one another. Later on it turned out that it was precisely this clash of opinions that led the German-American-Mexican team to success, as she wrote in an article for the American magazine Scientific American. “Since we all grow up in different cultures, I think that international periods of stay, “I had marvelous experiences in Paris as a NATO post-doctoral fellow and on a sabbatical with a Guggenheim Fellowship. In both of these cases I built collaborations and friendships that have lasted throughout my career,” Alice Gast says she has profited several times from her stays at the TUM in connection with the Humboldt Award. “I was able to move from a more physical-chemical background into more biophysics. It was a very important period in my career and my students and I benefited from the welcoming mentorship from Prof. Sackmann and his Habilitants.” Luckily she was able to bring her family with her to Munich back then. “Our children are life-long travelers and they enjoy Germany and German food and culture very much.”

A very important time

Prof. Dr. Alice P. Gast

is a Chemist and President of the Imperial College London since 2014. The internationally respected scientist was born in Texas and gained her PhD at Princeton University. After receiving a NATO scholarship, she spent a year as a post-doctorate at the École Supérieure de Physique et de Chimie Industrielles in Paris. In 1985 she began teaching at Stanford University, after that moving to the Massachusetts Institute of Technology as Vice-President of Research. In 2006 she became President of Lehigh University in Pennsylvania. As a scientific envoy from the US government, she was a consultant to the White House based on the knowledge she gained on journeys to Central Asia and the Caucasus Region, among others. An award from the Alexander von Humboldt Foundation brought her to Germany in 1999, and to the TUM, where she worked in the research group of experimental physicist Erich Sackmann. 2015 saw her awarded the honorary title “TUM Ambassador” by TUM President, Wolfgang A. Herrmann.

Building up friendships for a lifetime

Alice Gast has only good memories of her international periods of stay. “I had marvelous experiences in Paris as a NATO post-doctoral fellow and on a sabbatical with a Guggenheim Fellowship. In both of these cases I built collaborations and friendships that have lasted throughout my career.” Alice Gast says she has profited several times from her stays at the TUM in connection with the Humboldt Award. “I was able to move from a more physical-chemical background into more biophysics. It was a very important period in my career and my students and I benefited from the welcoming mentorship from Prof. Sackmann and his Habilitants.” Luckily she was able to bring her family with here to Munich back then. “Our children are life-long travelers and they enjoy Germany and German food and culture very much.”
**Prof. Dr. David Andelman**

is the Nussenzveig Professor for Statistical Physics at the School of Physics and Astronomy at Tel Aviv University, and received his PhD from Massachusetts Institute of Technology. He has been a visiting scientist in such places as Paris, Cambridge and Beijing. In 2002 he visited TUM as a research fellow of the Alexander von Humboldt Foundation. In 2015, President of TUM Wolfgang A. Herrmann awarded him the honorary title of “TUM Ambassador”.

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**Prof. Dr. Jonathan Veinot**

is Professor in the Chemistry department of the University of Alberta in Canada. He grew up in southern Ontario and received his PhD from York University in Toronto. In 2013 he came to Germany and TUM and researched at the WACKER Professorship for Macromolecular Chemistry with Professor Bernhard Rieger. In 2015, President of TUM Wolfgang A. Herrmann awarded him the honorary title of “TUM Ambassador”.

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PROF. ANDELMAN, WHAT WERE YOUR BEST INTERNATIONAL EXPERIENCES?

“I started my career in science as an international graduate student in Physics at the Massachusetts Institute of Technology (MIT). About half of the graduate students were international students coming from all over the world. In spite of our personal and cultural difference, we could enjoy studying and working together. This period left a remarkable impact on my views about how international science can and should be conducted. During the 30 years that I am a faculty member at Tel Aviv University, I enjoyed tremendously collaborating with students and researchers from many countries. They became part of my extended ‘academic family’. The language of science is truly international. Actually, the best research I do is when I am away from my office. Simply because during those times I can be completely absorbed by the scientific problem that we try to solve, without being distracted away by the daily routine we all have at our home institution. The Alexander von Humboldt Foundation, in particular, which supports international scientific cooperation projects in Germany, should acts as a role model for other countries.”

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PROF. VEINOT, WHAT ARE THE CHALLENGES ASSOCIATED WITH INTERNATIONAL COLLABORATIONS?

“The increased internationality of the academic community is partly the result of the opportunities presented by the internet, rapid electronic communications, and even social media. Seemingly little things like time zone differences and the inability to have spontaneous conversations about research and training can present big challenges. Despite the benefits of these modes of virtual communication, they cannot fully replace the key importance of face-to-face meetings, like strategic meetings or research visits. I have collaborated and interacted with people from all over the world. There is no question that many of my most rewarding experiences have been my colleagues and friends in Germany at the Technical University of Munich. I believe the reason for this is we had, and embraced the opportunity to spend substantial time getting to know each other face-to-face. This made it easy to build trust in each other and to make all involved feel comfortable with being vulnerable - as soon as someone is comfortable enough to admit we did not understand something great things can happen and it is easy to draw on the expertise and insight of everyone involved.”
How TUM promotes internationality:

In its mission statement, the Technical University of Munich sees itself duty bound to orient itself scientifically, structurally and organizationally towards the best international standards. That is why it places a great deal of value on being networked worldwide.

International alliances
No university, no country can overcome the challenges presented by science today on its own. TUM therefore works closely with around 170 partner universities and takes part in various international networks. With the German Institute of Science and Technology (GIST) – TUM Asia, the university enjoys permanent presence in Asia and, on Singapore’s CREATE Campus it carries out a direct exchange with top universities and companies. More than 150 delegation visits are welcomed by TUM every year.

Periods of stay abroad
International experience is one of the key qualifications for future management personalities. The students at TUM have a diverse range of opportunities to take part in studies of an internship abroad, as well as a combination of the two as part of the European ERASMUS+ Program, the non-European TUMexchange Program or the Athens Program. The exchange in teaching and research is an equally important goal of TUM: in addition to the activities and information offered by TUM Forts (Promotion of Research and Technology Transfer) and the TUM Graduate School, the ERASMUS+ Program for lecturer mobility provides university teachers with the opportunity to teach during a period of stay abroad, also in combination with short-term research stays.

Language Center
The TUM Language Center offers students, employees and alumni of TUM the chance to professionalize their language skills in a foreign language and in technical terminology at a university-oriented level. For this purpose, there is a semester-accompanying program in seventeen languages. This has seminars at basic, intermediate and advanced level. Course blocks are also provided in certain languages in lecture-free periods. The program includes teaching events on intercultural communication and events on intercultural discourse. Foreign-language students and staff can also take German courses at all learning levels.

Welcome to TUM
A total of 39,000 students are matriculated at the 13 faculties of TUM; more than 22 per cent of them come from abroad. Of these more than 8,000 international students, 1,500 come to TUM as part of an exchange program. Those studying as part of a program can study at TUM for a maximum of three semesters and do not graduate from TUM. International degree students, by comparison, aim to graduate from TUM and apply for a regular place of study. The Welcome Center supports international scientists, researchers, visiting professors and postdocs in moving to Munich and in their integration into TUM life and the region in and around the city.

22% of students and 15% of professors at TUM come from abroad.

International study offers
TUM offers courses of study, the teaching units of which are taught partially or fully in English. These courses are aimed at both foreign and German students who are striving towards studies with an international dimension. At the present time, nine TUM faculties offer a double degree program. This programs provide qualified students with the chance to achieve both a German and the corresponding foreign final qualification at a TUM partner university.

Development cooperation
Many TUM researchers and students are involved in examining global issues and, by doing so, often make a contribution towards development in poorer countries. Their engagement is diverse in nature and ranges from a final thesis on the sustainable provision of energy to hospitals in Nepal up to EU-funded large-scale projects on climate change and urban development in Africa. Find out more at: www.international.tum.de

We are delighted to be a learning and innovation hub engaging participants from 139 countries in a dynamic conversation. Such plurality of views contributes to the potential of developing innovative solutions with a truly global impact.”

Prof. Dr. Hana Milanov is TUM Vice-President for International Alliances and Alumni. As Professor for International Entrepreneurship she has taught in Croatia, Germany, Spain and the USA.
Focus  Internationality

TUM locations worldwide

TUM is at home all over the world. It has research locations and representative sites on five continents: Africa, Asia, North America, South America and Europe. It initiates research cooperation programs and an exchange between scientists and students at all its sites.

TUM ASIA IN SINGAPUR
The first campus of a German university abroad has been located in Singapore since 2002. The German Institute of Science and Technology (GIST) - TUM Asia Pte. Ltd., a privately run subsidiary of TUM. The TUM OFFICE PEKING has given TUM presence with its own office in the Middle Kingdom since 2006. With more than 15 partner universities, a constantly increasing number of study exchanges and ever more intense research cooperation programs, China is one of TUM’s most important partner countries.

TUM CAIRO OFFICE
The exchange of know-how with the Middle East and North Africa is pushed forward by TUM in Cairo. Focal topics of interest in the region are also the future research fields at TUM: energy, infrastructure, raw materials sources and nutrition.

SÃO PAULO OFFICE
At the heart of Latin America, TUM has had its Liaison Office in São Paulo since 2012. The Brazilian office aims to attract outstanding scientists and students to TUM.

TUM MUMBAI OFFICE
In the Indian metropolis of Mumbai, TUM offers a first point of contact for Indian students who want to do their Master’s or PhD in Munich, and for TUM scientists seeking contact to one of the world’s largest markets.

TUM OFFICE SAN FRANCISCO
In close proximity to Silicon Valley you will find TUM’s American contact office. It supports cooperation projects of TUM in the USA and contributes towards attracting excellent students and scientists.

EUROPEAN ALLIANCE IN BRUSSELS
is a founding member of the EuroTech Universities Alliance, a strategic partner of four European cutting-edge technical universities: École Polytechnique Fédérale de Lausanne (EPFL) in Switzerland, Danmarks Tekniske Universitet (DTU) in Copenhagen, Technische Universiteit Eindhoven (TU/e) in The Netherlands and TUM. These partners have been actively working together in Brussels since 2012.

International talent for Germany

From an IT company in India to one of Europe’s most important technology enterprises. Dr. Shailesh More came to Germany as part of his PhD at TUM. Since 2012, the Development Engineer has been working for Infineon in Neubiberg. TUM Asia, a representative TUM branch in Singapore played an important role in attracting this talented academic to Germany. It was there that he did his Master’s degree. “It’s a unique program resulting from cooperation projects between two top universities, TUM and Nanyang Technological University,” explains Shailesh More. While still a student, he was given the chance to complete an internship in connection with his thesis at a German company in Freising. He accepted, passed his exam with excellent results and was offered a place as a doctorate student at TUM. Shailesh More has now been in Germany for more than eight years, and his wife has also found work here.
“It’s amazing how little has changed here,” says Dr. Bernhard Schönlinner, when he returns to the “old” university. Now 42, he began studying Electrical and Computer Engineering at TUM 23 years ago. In 1997 he packed his suitcase and went to Milan for twelve months. “My journey through life was a straight line – matriculation, military service, then study. I wanted to see something different. I consciously decided on Italy, because it’s more relaxed there. And that’s certainly what I took away for the rest of my journey – don’t take everything so seriously.”

Student Christiane Gabelsberger also decided on a “warm, more relaxed country” when she took part in the Erasmus program. She recently returned from her five-month stay in Lisbon and is currently doing her master’s degree in Management and Technology with a minor in Electrical Engineering. “I have always worked in tandem with my studies, and done a whole lot of other things as well. When I was abroad I was able to take more time for myself,” explains the 26-year-old. She gained a host of valuable experiences, including a more self-confident view of her own culture coupled with a greater openness for new things. “You learn a lot, but perhaps not in an academic sense,” as the student explains. She was particularly struck by the helpfulness of the Portuguese. It took some getting used to the fact that strangers would come up and help her find her way or get on the right train. But these experiences taught her how nice it can be to accept help now and then. Bernhard Schönlinner also recalls how helpful his fellow students were in Milan. “I went to Nuclear Technology lectures, because I was interested in how atomic technology works. The professors were very nice, paternal even, but unfortunately difficult to understand at times. The other students really supported me and helped me get over the language barrier.”

Although foreign trips – then as now – barely account for credits and thus extend the study period, neither of the two wanted to miss out on the experience, as different as their stays may have been. “I had quite a lot of free time and I really enjoyed it. Including the partying. For instance, there was always a happy hour at the Radiciana Bar on Fridays. And if you had a birthday, you could easily get 40 guests together. Things were different for Christiane Gabelsberger. “I didn’t really have the full Erasmus life with lots of partying. I tended to spend time with Portuguese people, my fellow students and roommates.”

A foreign trip isn’t just a good addition to your CV, but provides many other advantages as well. “For me personally, that year abroad was also a springboard to the USA. I had gained experience in Italy and so the hurdle of going to the USA wasn’t that great,” explains Bernhard Schönlinner. Shortly before his graduation in 1999 he went to the University of Michigan, one of the most prestigious universities in the world, for his dissertation as well as his doctoral thesis. In 2004 he returned to Germany and has since worked as a scientific employee of the Airbus Group, where he conducts research in the field of high frequency technology. “A foreign trip expands your horizons. It opens up a lot of new opportunities. Now in my job when I meet people from other countries I can respond much better,” says Bernhard Schönlinner. The only small problem is the recurring sehnsucht. “You always feel a bit like you’re split in two. You have friends there and here and you can’t be everywhere at the same time,” says Christiane Gabelsberger. “That’s true,” agrees Bernhard Schönlinner, “but it makes it that much nicer when you go back on a business trip five years later and you know someone there.”
Global opportunities

TUM Alumni Woidy Hammami (Mechanical Engineering & Management 2013) has profited enormously from his stays abroad. Today, the 28-year-old passes on his experience to TUM students at Career Lounges: he likes this format in particular, because it is so open and the participants can bring in their own questions.

Despite his young age, Woidy Hammami has already been in many countries. During his studies, he completed an internship in the USA, and was in China and Spain later on during his trainee period. The time he spent in Fuzhou in China, in particular, presented him with great challenges, but he also learned a lot there: “You can’t go to a foreign country and tell the people there how to do their work. You have to understand the local way of thinking.” That is why he talks a lot to employees wherever he is in order to seek and find joint solutions. “That takes longer, but in the end it means things get implemented,” says Woidy Hammami, who now works as a development engineer at Daimler AG. His stays abroad also helped him on his career. “My potential employers were always very interested to experience what I had done in the USA, for example.”

At the Career Lounges, which take place several times every semester, and at which Woidy Hammami has already acted as a speaker, TUM Alumni provide insights into their career development and their everyday professional life in a relaxed atmosphere, thus allowing young people to profit first hand from their know-how. “Students can get authentic tips here from people who have actually had experiences themselves such as working or studying abroad,” he says, referring to the added value of attending such events. And for him, they are a good chance to maintain contact with the university and to give something back to it. He is also interested in hearing the other podium guests he adds. “I always meet interesting people here.”

Do you have experience on recruiting personnel or did you go straight into the world of business after achieving your doctorate? What were the first 100 days on the job like for you and what tips would you like to give young people just starting out on their career? TUM students and PhD students profit from your know-how at the TUM Career Lounges. The evening begins with an introductory and brief discussion round among the TUM Alumni, before going over into an open discussion.
Feeling at home in Germany

Laszlo Papp is happy that he has come to Germany with his family. The native Hungarian works as a visiting scientist at TUM and his three-year-old son Hunor attends kindergarten here. The family live in a quiet apartment in Freimann and are happy to have the mountains so close by and enjoy what Munich’s program of cultural events has to offer.

Laszlo Papp and his wife Anita Nagypal have a great deal of experience with foreign countries. Earlier research stays abroad took the young family to Italy and the USA. Since 2014, Laszlo Papp has been working at the Physics department at TUM in the working group of Prof. Dr. Stefan Schönert for experimental astroparticle physics. Together they are doing research work on the SOX experiment, which is searching for the so-called sterile neutrinos, the existence of which has not yet been proved. “We are happy to be back in Europe. The German mentality is much more similar to the Hungarian one than the US mentality is,” says Anita Nagypal, who works as a tourism expert in a German travel agency and has already traveled to 56 different countries.

The three would like to get to know other families from Munich.

And there is certainly enough time: Laszlo Papp’s research stay lasts officially until 2017. But who knows? Perhaps the three Hungarians will find a new home here.”

Would you like to get to know a visiting guest family?

Come along hiking and enjoy a day in the mountains of the Tegernsee area. Together with the TUM Welcome Center, we invite you and your family to come on this day trip at which you can explore the picturesque surroundings of Tegernsee with other TUM Alumni and visiting scientists from all over the world.

The hiking tour, which lasts about two hours, takes you around 6.8 kilometers from Gmund via the Tegernseer Höhenweg walking trail to Tegernsee. After a light climb with only a slight difference in altitude, you will embark together on a mountain walk. The trip will end on a hearty note in a local restaurant at our destination.

Sat. July 10, 2016
10.00 a.m. – 4 p.m.*
11.00 a.m. – 3.00 p.m.**

Hiking on the Tegernsee Höhenweg trail

* sometimes in Munich
** meeting point Gmund

Registration: www.together.tum.de/events
NEW BOOKS BY ALUMNI:

Around the world on a bike

TUM Alumni Florian Hanusch (Landscape Architecture 2008) barely had his degree under his belt when he set off on his adventurous bike tour. It took him from New York City to Tokyo, almost 9,000 kilometers through high mountain ranges, deserts and remote islands, a bike trip halfway around the globe. He survived tornados in the Mid-West, the burning heat of Death Valley and invitations to French toast with baked apples. Florian Hanusch celebrated Independence Day with gusto in Las Vegas, dived to sunken wrecks in the South Sea, climbed snow-covered peaks in the Rocky Mountains and fled from angry bears in the Appalachians. In his book Radabenteuer XXL (XXL Bike Adventure) he writes about what he experienced on this extraordinary trip.

What makes scientific communication successful?

How can the sciences really reach people and how do you get listeners and readers for subject matter that is often highly complex? These are the questions that TUM Alumni Dr. Marc-Denis Weitze (Chemistry doctorate 1997) and TUM Professor Dr. Wolfgang M. Heckl (Physics doctorate 1988) set out to answer in their recently published guide "Wissenschaftskommunikation – Schlüsseleide, Akteure, Fallbeispiele" (Scientific Communication – Key Concepts, Actors, Case Studies), in which they also offer numerous tips on next steps and do-it-yourself approaches. "Scientific communication takes place in the lab, in the school or in the café. It begins with a conversation between colleagues but can extend much further – to media and even politics. The diversity of actors and formats is both a benefit and a challenge," says Marc-Denis Weitze. At the same time, efforts at scientific communication are as old as science itself. What's new, though, is this interest in what makes scientific communication successful. "We’re right in the middle of an exciting phase in which the people’s voice is taken seriously, even in areas like natural sciences and technology, and there are many new formats for participation being tried out."
PARKING IN THE CITY OF TOMORROW

Instead of searching endlessly for an empty parking space, have the nearest vacant parking space displayed in real time on your navigation device: this dream of many drivers is something that the three TUM Alumni Felix Harteneck (Management and Technology 2015), Jakob Sturm (Electrical and Computer Engineering 2014) and Clemens Techmer (Electrical and Computer Engineering 2015) want to make come true. In April 2015 the founded ParkHere, a TUM spin-off that is developing the first energy self-sufficient sensor system for smart parking solutions. The technology of ParkHere therefore works according to a special approach: the sensors are charged using the pressure of the car driving over them. This does away with the need for an external power source. Every sensor is connected to the Internet and transmits its current status to a server via a mobile Internet connection.

On a visit to the Entrepreneurship Center at TUM and UnternehmemeTUM, German Chancellor Angela Merkel and entrepreneur Susanne Klatten (r.) tested the sensors of ParkHere. Felix Harteneck and Jakob Sturm (l.) explained the technology.

Baking with algorithms

Bread is one of the most popular foods in the world. TUM Alumni Dr. Ingo Stork (PhD in Electrical and Computer Engineering 2011), founded the company Precibake in New York in 2012, which offers high-tech solutions for the baking industry. The aim is to prevent production errors using a combination of artificial intelligence and food technology, thus preventing food waste, among other things. Today they also have an office in Munich and one in India. A large part of the company’s employees is made up of former staff and TUM Alumni. “In future we will also remain interested in intensifying this close cooperation with TUM and TUM Alumni. “In future we will also remain interested in intensifying this close cooperation with TUM and TUM Alumni,” says Ingo Stork.

After carrying out research work as part of his degree thesis at MIT in the USA, Ingo Stork was planning to do a doctorate in the field of Machine Learning, returning to Germany and to TUM in the department of data processing with Prof. Klaus Diepold. He wrote his doctorate as part of the CotTelSys (Cognition for Technical Systems) excellence cluster in the field of laser welding for the automotive industry. Find out more at www.community.tum.de

Alumni startups

“30 Under 30 Europe” - US magazine presents in this list outstanding personalities under 30 years of age in the area of science and health. On the list are four entrepreneurs whose company foundation was or is supported by TUM: Sinan Denemec, David Fehrenbach (Master’s in Mechanical Engineering 2006) while he was out sailing: “I noticed that the boat, despite weighing several tons, was bobbed about by small waves. That was when I realized how powerful waves actually are.” The vision of the engineer and company founder today is to build power stations that generate electricity from waves. One module alone should be able generate more than 100 kilowatt hours under the right wave conditions, as much as ten average German households need per day. SINN Power GmbH already carried out a successful test run in December 2015 in the sea by Crete. The next step is to install a complete 25-part power station. “I’ve always been fascinated by the notion of having my own company,” Sinn says, who now employs 30 members of staff. In his study extension course on “Regenerative Energy Systems” at the TUM, he found out more about environmental technology. Although he already had his first idea for a wave power station in 2005, he did not set up his company until many years later: “I already had some first patents and was able to convince others of my idea as well while I was doing my PhD as an external student while working as a consultant at the BMWi (Federal Ministry for Economic Affairs and Energy). That attracted the first investors.”

They belong to the top “30 Under 30”: Alexander Rinke (Celonis), Sinan Denemec, Moritz Knoblauch and David Fehrenbach (awards from top left clockwise).

TUM Alumni Philipp Sinn with a model of his wave power generator. The original was tested with success in the Sea of Crete in December 2015.

ALUMNI, MID 20, TOP 30 IN EUROPE

30 Under 30 Europe - US magazine presents in this list outstanding personalities under 30 years of age in the area of science and health. On the list are four entrepreneurs whose company foundation was or is supported by TUM: Sinan Denemec, David Fehrenbach (Master’s in Mechanical Engineering 2006) and Moritz Knoblauch (Master’s in Mechanical Engineering 2015) are currently working at the Entrepreneurship Center of TUM preparing the launch of their company in the healthcare industry. TUM Alumni Alexander Rinke is one of the managing directors of the IT company Celonis (p. 10 in this issue). In 2015, TUM bestowed the Presidential Entrepreneurship Award on Celonis, which came with prize money of 10,000 EUR. Read more at www.community.tum.de
Alumni Ticker

The ZIMA Group has appointed a second director in Andreas Böhme (Civil Engineering 1985). He will be the new operational head for the Munich office with joint responsibility for technical product development. On December 1, 2015, The toolholding and workholding specialist Röhm added Dr. Robert Buchmann (Mechanical Engineering 1987) to its board. His portfolio includes the business areas of sales, marketing and service as well as finance and purchasing. In 2016, Jost Capito (Mechanical Engineering 1985) will be switching from his position as director of Volkswagen Motorsport to the British company McLaren Racing and will offer reinforcement to the racing department of the company as a director. Maximilian Chucholowski (Mechatronics and Information Technology 2006) was appointed second CEO of TESIS DYNAware in December 2015 and now manages the company’s development efforts. Volkswagen Financial Services AG appointed Dr. Christian Dahlheim (Physics 1993) to its board effective January 1, 2016, with responsibility for sales and marketing. Dr. Oliver Gschwendtner (PhD Food Technology and Biotechnology 2000) will be supporting the management of supermarket chain Netto from May 1, 2016. He will be working in the area of purchasing. Georg Harrasser (Mechanical Engineering 1990) was appointed Chief Operating Officer of the Braas Monier Building Group S.A. His career at the company began in 1993 and since then he has served in various quality management positions, as works manager and as CEO. Dr. Pamela Herget-Wehlitz (PhD Mechanical Engineering 2000) is the new IT Center Manager of the Munich engine manufacturer MTU Aero Engines since February 2015. She was appointed from within the company, having previously served as Corporate Quality Center Manager. Christian Köstler (Mechanical Engineering 2000) will be supporting senior manager as Chief Operating Officer of DEHN, in the area of lighting and surge protection. Between 2000 and 2015 he worked for the German company Stihl in the USA and Germany. Dr. Kai Zercher (PhD Informatics 1992) has been head of IT for the testing and expert organization DEKRA since January 2015. The position equates to that of a CIO, with global responsibility.

Company founders sketch their idea!

Steering a wheelchair using only head movements and spoken signals would make things a lot easier for people who are restricted in their movement: with GLASSCHAIR, three Master’s students from the TUM Chair for Application and Middleware Systems have now developed the perfect technical solution for this. In 2015, their success was rewarded with the 1st prize in the competition for healthcare visionaries held by the University of Witten. The award was handed over by Federal Minister of Health Hermann Gröhe. Dominik Schernthauer, who is currently working on a further development of the prototype together with Shady Brotos and Claudiu Leverenz, drew a sketch of the GLASSCHAIR idea for KontakTUM on a post-it.

ALUMNI ARTEFACT

When Maren Heinzerling (Mechanical Engineering 1964) began to study Mechanical Engineering at the then “Technische Hochschule München” in 1958, she was the only female student of the subject. The university had not adjusted to female students at that point and therefore the title of “Mr.” had to be changed to “Miss” by hand in all her obligations as a student and in her student ID. Today 13,248 female students are enrolled at TUM, which corresponds to 34 percent of all students.

Maren Heinzerling recalls her student days on www.community.tum.de.
Tailored subscription and services!
In your personal TUM Community profile, you can change your post and email address on your own, and subscribe or cancel the alumni magazine and newsletter.

Openness means forging new paths.
Over 30 country groups offering opportunities for personal exchange are just a click away. Why not discover the TUM Iran group, for instance, established by graduate Golnoosh Hariri.
www.community.tum.de

“Studying at TUM and living in Munich was such a great experience which had motivated me to continue my contact with the TUM Network even after my graduation.”
Golnoosh Hariri, founder of the TUM Iran Community group

Your Network is online!

Find fellow students!
With the help of the advanced member search you can find graduates from a specific year or course of study, or find out what other TUM alumni also work for your employer.

Sell your old study books!
Do you want to sell your old course books? Or are you looking for a cheap apartment for your next stay abroad? In the classifieds section in the TUM Community you can check out what other members want to buy or sell or just to browse around.

Discover TUM Brazil and more!
More than 30 country-specific groups are waiting for you: in the TUM Community exchange ideas with TUM Alumni who live in those countries. They can give you good tips for your next holiday or concerning your career prospects.

Blog: Objects of TUM!
In the TUM Community blog you can read on a regular basis about the history of TUM objects. For example, the Golden Angel, the TUM ring of honor or St. Corbinian’s bell in Weihenstephan.

www.community.tum.de