

MAGAZINE

OF HEINRICH HEINE UNIVERSITY DÜSSELDORF



PARABOLIC FLIGHT: TOTALLY DETACHED FOR 22 SECONDS

Cardiology experiments
in microgravity

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ISATION STRATEGY:**
Worldwide
contacts

▶ **SCENT OF HONEY
IN THE LAB:**
Supercomputer helps
biology researcher

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How comics
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Photo: German Aerospace Center



From: "Irmina" by Barbara Yelin, Reprodukt

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Editorial



Dear Reader

I am very pleased to be able to present to you what is meanwhile the eighth issue of our HHU Magazine with interesting reports on current projects and developments at Heinrich Heine University. But first let me wish you all the best for 2018!

This winter semester, our President's Office welcomed about 4,000 new students to Heinrich Heine University Düsseldorf. We are very pleased that so many young people have started studying here. As Vice-President for International Relations, one of my main concerns is to ensure that the percentage of students from abroad continuously increases, thus making our campus even more international and open to the world.

Our new Internationalisation Strategy has now been put down on paper and is firmly embedded in our University Development Plan. New at HHU is our Welcome Centre for International Researchers, which provides an extensive portfolio of services for international researchers and teaching staff during their stay at HHU. Try it! We eagerly await your arrival!

I am particularly pleased that student mobility at HHU is increasing. The demand for international scholarships has grown constantly over the last years. At the same time, mobility amongst our technical and administrative staff is also very important to me and I actively encourage them to go abroad and take a look at how their foreign colleagues are working. A temporary stay abroad at an international

institution in the framework of staff mobility can broaden our horizons and give us a clearer view of how others are dealing with similar structural challenges – as well as considerably enhancing our relationships with our partners.

A completely different topic on which HHU is working feverishly right now is 'Excellence'. Once again, the Cluster of Excellence on Plant Sciences (CEPLAS) is in the running for a place amongst the best research projects in Germany. CEPLAS has been conducting research since 2012 in the area of plant sciences and the challenges facing global nutrition in the future in the framework of the Excellence Initiative of the national and regional governments.

Dear Reader, I hope you enjoy reading the latest issue of our HHU Magazine. This time you can learn about cardiology experiments during a parabola flight or a breath sensor system, the latest lab results with the 'scent of honey' and cool computers – not forgetting the value of reading comics in tutorials!

I wish all of us continued productive cooperation at international level!

Yours sincerely

Professor Andrea von Hülsen-Esch
Vice-President for International Relations

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About 4,000 freshers join HHU

Welcome ceremony for first-semester students at start of 2017/2018 lecture period

Almost 4,000 new students began their degree programmes at Heinrich Heine University in the 2017/2018 winter semester. Anja Steinbeck, President, and Christoph J. Börner, Vice-President, welcomed the “freshers” on 9 October 2017 in the Konrad Henkel auditorium together with Düsseldorf’s mayor Günter Karen-Jungen and Jennifer Voß, chairwoman of the Students’ Union. Professor Steinbeck: “The start of the winter semester is always a very special day. I’m very happy for the many young people who are today starting a fantastic new stage in their lives!”

Just a few minutes after the doors to the University’s largest auditorium opened, the over 600 places were already all

taken. Anyone left standing was able to watch the welcoming ceremony live on video in one of the other seven auditoriums or via live stream in the internet. “I hope that you will all enjoy studying at Heinrich Heine University and complete your programmes successfully,” said the President and gave the new students the following recommendation: “Take studying seriously, try to go abroad and gather experience there and always make your decisions in life independently of money!”

Professor Christoph J. Börner, Vice-President for Quality in Studies and Human Resource Management, highlighted the excellent study conditions and extensive services and advice available for students at Heinrich Heine University Düsseldorf. He encouraged the

students to use them: “Your success is close to HHU’s heart throughout your university career.” This starts with course guidance to help prospective students to choose the right programme and new students to set off on the right footing at university. A wide range of

Wide range of services

different advisory services, consultation sessions, workshops and seminars are in place to help you achieve the goals you set yourself over the coming years at university. The Student Services Centre is your first port of call on campus for any questions to do with studying. What is particularly important to us is that you complete your programme and set off on your career path successfully. The Career Service run by the Student Academy provides career guidance. Training in transferable skills, cross-faculty lectures and language courses will help you to launch your career!”

HHU is once again amongst the universities that are receiving up to € 9.5 million in the framework of the “Quality in Teaching Pact” financed by the national and regional governments for the

At the start of the lecture period on 9 October 2017 at HHU (from left): Professor Christoph J. Börner, Vice-President, Professor Anja Steinbeck, President, and Günter Karen-Jungen, Mayor of Düsseldorf.



Photos: Wilfried Meyer



1, 2: At the information fair, important institutions answered all students' questions about studying and getting off to a good start.
 3: University radio and Campus TV were present and used the opportunity for a live interview with the President.
 4, 5: Professor Anja Steinbeck, President, and Günter Karen-Jungen, Mayor of Düsseldorf, welcomed the 'freshers' on behalf of HHU and the City of Düsseldorf.
 6: Coveted freshers' rucksacks with lots of information were available from the Student Services Centre.

2017-2020 period for the purpose of further optimising the quality of studies and teaching.

Düsseldorf's mayor Günter Karen-Jungen wished the students a good start on behalf of North Rhine-Westphalia's capital city and urged the "freshers" to discover and enjoy all that the vibrant city of Düsseldorf has to offer in the way of cultural, economic and international diversity. At the end of the ceremony, social scientist and science slammer Nico Hoffmeister pre-

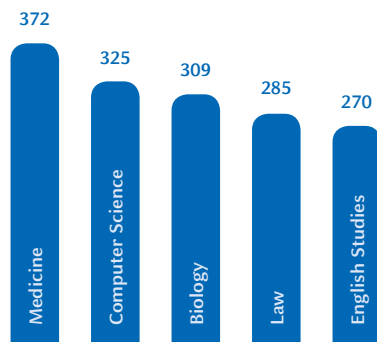
sented with wit and charm the results of his research into names: "Chantal forever – When a name becomes destiny."

Information fair

All the facilities at HHU important for students presented themselves and their wide spectrum of advisory services at an information fair in the foyer of the

auditorium complex. The new students were also able to acquire a foretaste of the broad range of cultural and leisure activities offered on campus and in the city. Alongside university initiatives, e.g. university sports, orchestra and radio, renowned cultural institutions in Düsseldorf and the region, such as theatres and opera houses (Deutsche Oper am Rhein, Schauspielhaus), the ZAKK cultural centre as well as sports clubs, e.g. DEG Metro Stars, also presented themselves. C. G.

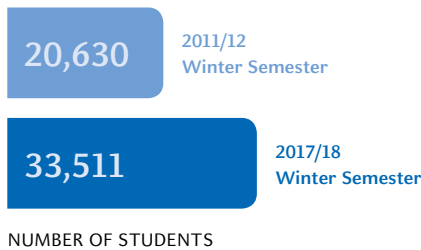
2017/2018 Winter Semester: Facts & Figures



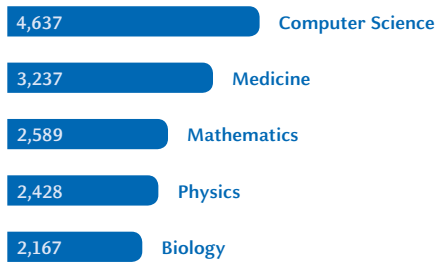
STUDENTS IN 1ST UNIVERSITY SEMESTER

3,887
new students in
2017/18 winter semester

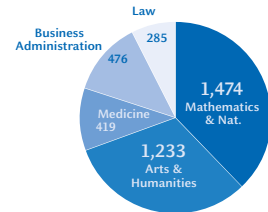
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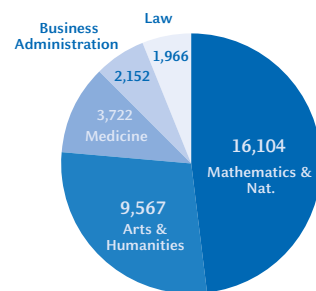
NUMBER OF STUDENTS



STUDENTS BY SUBJECT



1ST SEMESTER STUDENTS BY FACULTY



STUDENTS BY FACULTY

A great achievement: Nine new tenure track professorships

The “Tenure Track Programme” of Germany’s national and regional governments will facilitate nine new professorships for early career researchers at Heinrich Heine University Düsseldorf (HHU) in the coming years. Professor Anja Steinbeck, HHU President: “This represents a clear career perspective for early career researchers at HHU.”

commissioned by the national and regional governments on 21 September 2017 in Berlin. Professor Steinbeck added: “The new professorships play an important part in the achievement of our strategic objective of helping early career researchers to plan their careers over the longer term.”

Clear prospects for early career researchers

In the framework of their programme, the Federal Ministry for Education and Research and the federal states are helping to set up nine new tenure track professorships at HHU. This means that Düsseldorf University has been successful in a very competitive environment: Almost all universities in North Rhine-Westphalia took part in the call for proposals.

“With the tenure track professorships, outstanding early career researchers are given a clear perspective for their academic vita,” said Professor Anja Steinbeck when the results were announced by the project management agency jointly

Offer more career options

Several of HHU’s strategic research priorities, for example Synthetic Life Sciences, will see further expansion thanks to the new posts to be set up in the coming three years. The tenure track professorships will initially be financed for a period of six to eight years from the approved funds, after which they will be taken over permanently by the University. At the same time, HHU’s concept envisages a broadening of career options for university lecturers who are more engaged in teaching as well as for research managers. In addition, HHU plans to further optimise the reconciliation of family and work, which will also foster the careers of female academics.

J.K./A.C.

A cultural treasure returns home

University and State Library purchases medieval manuscript

The University and State Library has succeeded in purchasing a medieval manuscript at Christie's in London, which originated in the 15th century in Essen-Werden and, as part of the library of the former Benedictine Monastery in Werden, is part of the cultural heritage of the Rhine-Ruhr region and therefore worth protecting.

The small book with 326 parchment sheets contains the 150 psalms of the Old Testament in Latin, which the Benedictine monks sung every week during the Liturgy of the Hours. The texts are written in black ink in a late Gothic Bastarda script and the start of each sentence highlighted with red and blue initials. The first part of the text as well as the beginning of psalms 20, 32, 45, 59, 73, 85 and 101 are adorned with large, multi-coloured initial letters and mark the beginning of the daily liturgy for the seven days of the week. Countless signs of wear and tear show that the psalter really was in daily use.

Ornately decorated

In addition to the biblical psalms, it contains hymns that were read on special feast days. A calendar with the names of saints and their respective commemoration days as well as what are known as computistic tables to calculate the date for Easter (which changes each year) showed the monks on which days certain saints were to be commemorated during mass. There are ornamental initial letters with floral elements on a gold background in the hymn section of the little manuscript too and the texts are framed by a decorative border.

An entry in red ink on the first page clearly indicates where the manuscript originated: Liber S. Ludgeri Werthensis Monasterii (a book belonging to the St. Ludgerus Monastery in Werden). This abbey, which was already founded around 800 AD in Werden (now a suburb of Essen) by Utrecht priest and missionary Ludger, amassed an impressive library during its 1000-year existence, which included a large number of unique manuscripts and about 11,000 early prints. The monastery also had its own scriptorium in which skilled scribes produced and copied manuscripts. However, in the

course of secularisation in 1802/03, the monastery was dissolved and its extensive book collection sadly scattered. About a hundred Werden manuscripts are still known today, of which about a third are preserved in the University and

Around a third of the Werden manuscripts are today in the library

State Library. The former Royal Library of Düsseldorf (a predecessor of the University and State Library) was given these manuscripts along with a larger number of prints during the first half of the 19th century, together with books from about 24 other monasteries in Westphalia and the Rhineland. Since 1977, the entire collection of manuscripts can be found at the University of Düsseldorf where it is available – meanwhile also in digital form – for research purposes. C. S.



Beginning of the 45th psalm "Deus noster refugium et virtus"

innoMMT team scores with modular breath sensor

Benefactors award start-up grant of € 50,000

BY CAROLIN GRAPE

At University House on 19 October 2017, the Association of Friends and Benefactors of Heinrich Heine University Düsseldorf awarded its start-up grant of € 50,000 for the first time. Winners were the innoMMT team for their innovative start-up concept: The development and marketing of modular breath sensor systems for telemedical, non-invasive therapy and health monitoring. The aim of the grant, which is disbursed in 12 monthly instalments, is to help transform the idea into an application.

Through the grant, the association wants to spur on the pioneering spirit at HHU and consolidate Düsseldorf's position as a place for innovation and business. Eduard H. Dörrenberg, the association's president, says: "The purpose of the start-up grant is in the first instance to give some financial support to an especially talented start-up. This is regarded as the association's beacon project. The status of this new funding for the association is shown by the fact that all four members of its executive board are each contributing € 10,000 for two years."

HHU President Professor Anja Steinbeck added: "On behalf of Heinrich Heine University, I can only say that I find the association's initiative quite tremendous! At HHU we are not satisfied just with acquiring new knowledge through research, one of our main goals is also to transform the know-how generated at the

University into practical applications. The start-up grant makes a contribution here by encouraging researchers, students and graduates to set up their own business and show entrepreneurial spirit."

The winning innoMMT (innovative, mobile, modular telemedicine) team – Lena Ehrenpreis, Fabian Meyer and Christiane Schüle – has developed a handheld mobile breath test at the Ear, Nose and Throat Department of Düsseldorf University Hospital. The device is based on a "plug & blow" concept. It can be adapted for various disorders and conditions, such as asthma, lactose intolerance or carbon monoxide poisoning and

Saving the patient tiresome trips to the doctor

used to obtain an immediate diagnosis in hospitals or doctors' surgeries. Tiresome trips to the doctor become a thing of the past thanks to the telemedical link. And because of the modular design, it will be possible in future to expand the range of detectable disorders.

The three members of the winning team only began working together on their idea in this constellation in 2016. Lena Ehrenpreis completed her Bachelor and Masters degrees in Medical Physics at HHU and is now a research associate at the Ear, Nose and Throat Department of Düs-



Photo: Wilfried Meyer

At the award ceremony (from left to right): Professor Anja Steinbeck, HHU President, Professor Andreas Pinkwart, Minister of Economic Affairs, Digitisation, Innovation and Energy of the Federal State of North Rhine-Westphalia, Lena Ehrenpreis, Fabian Meyer, Christiane Schüle, Eduard H. Dörrenberg, President of the Association of Friends and Benefactors of HHU Düsseldorf

seldorf University Hospital under Professor Jörg Schipper. When asked about her career goals, her immediate answer is “Businesswoman!” Professor Klaus Schierbaum at the Institute of Experimental Condensed Matter Physics at HHU was the supervisor for her Bachelor and Masters theses and it was there that she already began working with Christiane Schüle.

Fabian Meyer worked for several years as developer and administrator for an e-learning platform (Professor Dieter Schumacher, Practical Physics Training) at Heinrich Heine University where he met Lena Ehrenpreis. He has just commenced his Masters degree in Media Informatics at Düsseldorf University of Applied Sciences.

Christiane Schüle studied Chemistry in Freiburg and Heidelberg and Economics at RWTH Aachen University. For over 10 years she was in charge of Research, Technology and Innovation Management and Business Development at Henkel in Düsseldorf. She is now also a research associate in Professor Schipper’s group at the Ear, Nose and Throat Department.

innoMMT was co-financed up until the end of 2017 by the EFRE.NRW programme (regional funds partly sourced from the European Regional Development Fund). This allowed a first prototype to be developed. The aim now is to enter the clinical evaluation phase with the help of the start-up grant. The team’s interfaculty structure shows once again that good start-up ideas from science and research are nowadays often interdisciplinary.

The fact that Professor Andreas Pinkwart, Minister of Economic Affairs and Digitisation, attended the award ceremony at University House shows just how important the associa-

tion’s support is. He highlighted the significance of start-ups in North Rhine-Westphalia: “The winning team is a shining example of two trends identified in the German Start-up Monitor published recently, which reports that more and more start-up entrepreneurs in the Rhine-Ruhr region are female and that start-ups are very much science-based. This is a particularly typical characteristic for our region as a hotbed for start-ups. But not only that. The proximity of

Favourable environment for innovative entrepreneurs

young enterprises to already established small and medium-sized enterprises as well as multinationals makes North Rhine-Westphalia attractive for so many start-ups. With this first award of its start-up grant, the Association of Friends and Benefactors of Heinrich Heine University Düsseldorf is setting an excellent example of how to support Düsseldorf and beyond as a place for innovation and science. Congratulations to the winning innoMMT team! May your success continue!”

Dr. Thorsten Eggert, himself a former start-up entrepreneur and today successful manager of evoxx technologies GmbH, producers of enzymes for organic foodstuffs, gave the laudatory speech. In his eyes, it is primarily the fact that Düsseldorf is such a good location for business and science that makes start-ups so successful. He highlighted institutions that support start-ups, such as the Life Science Center, TTHU technology transfer agency and not least CEDUS.



Association of Friends and Benefactors of Heinrich Heine University Düsseldorf

Founded in 1955, the Association of Friends and Benefactors of Heinrich Heine University Düsseldorf is the leading private institution in support of research and science in the Düsseldorf region. The association has long become an important link between the University and the general public, not only with its 24 foundations but also its network of key personalities from public life. From the fees contributed by its some 400 members, investment income as well as donations amounting in total to about € 1.8 million per year, the association sponsors a large number of scientific projects and also funds investments at HHU.

“Where are we? Where do we want to go?”

The Internationalisation Strategy of Heinrich Heine University

The strategy is anchored in the University Development Plan 20.21 for the period 2017-2021. It is based on the “Internationalisation of Universities” audit of the German Rectors’ Conference successfully completed in 2016.

BY ROLF WILLHARDT

Art historian Professor Andrea von Hülsen-Esch is Vice-President for International Relations. In the summer of 2017, she presented a strategy paper which is currently under discussion in the faculties.

Right at the start of the paper it says: “Internationalisation is a cross-cutting task for which all university members are co-responsible. Shaping HHU’s internationalisation strategy is understood as a continuous, dynamic and transparent process that brings on board all the relevant groups at the University. In order to engage more in research and teaching at international level, HHU will improve overall conditions for the university members involved, giving greater consideration and support to their ideas, motivations and personal contacts abroad. Optimising structures, contacts and communication channels in the faculties also serves to bundle and strategically align international contacts as well as create synergies for the University as a whole. HHU will empower its students to enter the international academic stage and co-shape

an increasingly intercultural society in their home countries.”

There is no question about it: In research, knowledge transfer and as far as early career researchers are concerned, internationalisation is a key factor. “Cutting-edge research requires an exchange of ideas that does not just traverse the boundaries between disciplines but also those between countries and cultures,” writes Vice-President von Hülsen-Esch in her strategy paper. What she also makes clear in the discussion: “Structures and services are already in place. In future, we will optimise and make more intensive use of them. The percentage of professors with international experience will also increase.”

Welcome Center set up

At present, a “Welcome Center” with an extensive service portfolio is being established at HHU, which ensures that scholars from abroad can concentrate on research and teaching during their stay there. The areas of “Studies and

“DÜSSELDORF’S APPEALS AS A MAJOR CITY ON THE BANKS OF THE RHINE AND IN THE HEART OF EUROPE ALSO LETS US SCORE ON THE INTERNATIONAL STAGE.”

Professor Andrea von Hülsen-Esch, Vice-President for International Relations

Teaching” have a direct impact on students and internationalisation plays a key role here too. “The intention is to introduce more mixed-language or foreign-language Masters programmes in all the faculties,” says the paper, “whilst English or another foreign language should be offered as the language of instruction in 20 percent of teaching in Bachelor programmes (including former state examination programmes).” The aim is to internationalise curricula as swiftly as possible and appoint more visiting professors from abroad. The Vice-President’s paper goes on to say:

Growing demand for international scholarships

“An international student body is the best way to convince domestic students of the advantages of going abroad and to teach intercultural skills back at home.” At present, about 11 percent of HHU’s students are from abroad. “As far as our German students are concerned, the demand for international scholarships has grown constantly over the last years. Mobility is increasing and this is absolutely essential,” says Professor von Hülsen-Esch. She goes on to quote the Stifterverband (Donors’ Association for the Promotion of Humanities and Sciences in Germany): Industry and commerce are not interested in university graduates who have not been “out in the big wide world”.

It is important in the internationalisation process to give all university members, including technical and administrative staff, the right advice and support. “The goal is to send 30 percent of our technical/administrative personnel

abroad in the framework of staff mobility programmes, so that they can familiarise themselves with work cultures and business processes at other universities,” says the paper.

Focus on Japan

And finally, the area of “Marketing and Communication”: In the globally competitive university landscape, HHU’s corporate identity is of major importance and a key communications interface. “Japan is one of the most important countries for HHU, not least because of Düsseldorf’s locational advantage.” With over 6,500 people, “Japantown Düsseldorf” is the largest Japanese community in Germany and plays a significant role in shaping society, business and culture in the city. “And Düsseldorf’s appeal as a major city on the banks of the Rhine and in the heart of Europe also lets us score on the international stage,” says Vice-President Professor von Hülsen-Esch.



Photo: Wilfried Meyer

Professor Andrea von Hülsen-Esch, Vice-President for International Relations: “Structures and services are already in place. In future, we will optimise and make more intensive use of them. We will further internationalise our existing research priorities and gain access to new networks via existing partnerships as well as actively recruiting visiting scholars and postdoctoral researchers from abroad. The percentage of professors with international experience will also steadily increase.”

Contacts around the globe

Heinrich Heine University Düsseldorf has cooperation agreements with 21 fellow institutions, including renowned universities such as Tel Aviv University and Charles University (Prague). There is a clear focus on Japan where HHU has entered into partnerships with seven fellow universities, including the Keio and Waseda universities in Tokyo, Doshisha University and Chiba University. In the framework of the Erasmus programme, HHU has concluded over 300 inter-institutional agreements with about 190 universities in 28 European countries. Many further partnerships and agreements are in place at faculty and department level.

From refugee to researcher

Iranian psychologist does doctorate and helps traumatised refugees

BY ARNE CLAUSSEN AND VICTORIA MEINSCHÄFER

Up until two years ago, 31-year-old Mohammad S. (his family name has been anonymised at his personal request) lived and worked in Shiraz, a city with over 1.5 million inhabitants in the south of Iran. The psychologist worked in a hospital there as a family counsellor and also taught “General Psychology” at the city’s renowned university. In 2015, he decided to flee his homeland.

He had no idea where his journey would take him. “I just wanted to be in safety. Where wasn’t important,” he says. Unlike in Iraq and Syria, there is no war raging in Iran. But intellectual, political and religious freedom is extremely restricted, which is why above all many educated people are fleeing the country. In 2016 he managed to reach Germany and after stays in Essen and Lemgo he came to Düsseldorf in the summer of 2017.

“I was lucky to be able to get in touch via the www.chance-for-science.de website with Dr. Marijn van Wingerden and Professor Tobias Kalenscher of HHU’s ‘Comparative Psychology’ research group,” says S. Refugee scientists who want to

further pursue their academic career in Germany can register on this platform. And van Wingerden just happened at that time to be using the platform to look for scientists for his

Advice and trauma care for refugee families

‘Social Rodent Lab’ research project. S. has now been a research assistant at HHU since September and is learning its research methods. He hopes to start soon on his doctoral project: “Our research work aims to understand how animals decide between social and non-social rewards.” Particularly interesting is the question: Are both reward systems represented in the same neuronal structures?

Alongside his research at HHU, S. works for Caritas in Düsseldorf as a family counsellor, where he primarily takes care of refugees from western Afghanistan who speak Dari, a variant of Persian, his mother language. These people have experienced terrible things before and during their flight and are severely traumatised. “Being helped by a counsellor with similar roots and language is very beneficial for my patients.” This is because many linguistic and non-linguistic signals play a major role in the diagnosis; particularly important are body language, facial expression, pronunciation and choice of words. But also knowledge of the patient’s social and religious specificities is interesting for the therapist. When translated for a German therapist, much of the information so important for assessing the patient’s overall condition is lost.

„BEING HELPED BY A COUNSELLOR WITH SIMILAR ROOTS AND LANGUAGE IS VERY BENEFICAL FOR MY PATIENTS.“

Mohammad S., Iranian psychologist



Mohammad S. fled from Iran in 2015 and today lives in Düsseldorf.

S. reports that the situation in which these refugee families find themselves is very difficult. Many suffer from PTSD (Post-Traumatic Stress Disorder) as a result of what they experienced in their home country and during their flight. Their living conditions in Germany aggravate the situation and the refugee homes themselves are a stress factor. Patients are unable to unwind, it is cramped and noisy. In many cases, they are unable to do their therapeutic exercises, such as keep to a regular sleep pattern, because their neighbours disturb them. Then there are the social and cultural differences between the various groups of refugees as well as very different reasons why they fled.

Western science

S. was already working as a counsellor when he was still in Shiraz. "Psychology is a western science. In Iran it has no independent tradition; teaching and reference books are European, US-American or Australian," he explains. By and large, psychologists can work freely in Iran, even if the government adopts a critical stance towards the subject. For many of those in power, psychology, which centres on the individual and individual freedom, contradicts fundamental religious principles. That is why the authorities do not support psychology, just as they do not support philosophy and sociology

either. It often occurs that passages in translations, which the researchers often produce themselves, are censored. In their everyday work, however, there are only concrete restrictions in the area of sexual therapy, which is not permitted for religious reasons.

Different higher education system

The higher education system in Iran is very different to that in Germany. Although almost every city has a university, a large number of private universities prevails over very few state ones. Whilst studying at a state university is free of charge, the private universities demand tuition fees; the better their reputation, the higher the fees. Each year, about 1 million candidates apply for a university place at a state university, but only some 4,000 are actually accepted after a demanding entrance exam. Education in Iran is a great asset. That is why families try to send their children to university for at least a Bachelor degree. Today, Mohammad S. lives in a small apartment in Düsseldorf together with his wife, who is also a psychologist and from whom he was separated for 18 months. And he is very grateful to Dr. van Wingerden and Professor Kalenscher: "They placed great trust in me and campaigned for me so that I can resume my academic career here."

From “Down Under” to the Rhine

Australian Benjamin W. Berntsson earned his doctorate at the Chair of Bioorganic Chemistry



BY ROLF WILLHARDT

His dad came to Düsseldorf for the degree ceremony. After a 24-hour flight. Because his son Benjamin is from “Down Under”: Australia. The young chemist has been studying in Germany since 2013 at Heinrich Heine University’s Chair of Bioorganic Chemistry, which has its laboratories at Jülich Research Centre.

Why did he choose to study in Germany? “Because I always wanted to work in the pharmaceuticals industry and Germany is leading in this field. At home, this industrial sector plays a more marginal role, which means that career prospects are correspondingly low and there aren’t many jobs,” says the young “Aussie” (a nickname of which Australians are proud, by the way). He also finds Europe’s cultural diversity fascinating, “in just a few hours you’re in a different country and a different culture.”

Benjamin Berntsson was born in 1988 in Canberra, Australia’s capital founded in 1913, also commonly known as “The Bush Capital”. He studied at the Australian National University there (22,500 students), which according to

university rankings is the best in the country, as he says – not without pride.

Berntsson, whose mother also held a doctoral degree in Chemistry, went through the usual stages in Australian academic education up to Bachelor of Science (Honours), “which equates more or less to a German diploma in Chemistry,” he explains. During his Bachelor thesis he also studied for six months at Dalhousie University in Halifax (Nova Scotia,

Soon settled in

Canada). It was there that Berntsson – who has Swedish ancestors – met German students for the first time. They told him about CLIB, the Graduate Cluster Industrial Biotechnology, an alliance of the universities of Düsseldorf, Dortmund and Bielefeld.

He spotted an announcement on the CLIB website for a doctoral scholarship at HHU, respectively at Jülich Research Centre. Berntsson applied, was interviewed via Skype by Professor

Jörg Pietruszka, his later doctoral supervisor, and accepted. His plane landed in Düsseldorf in May 2013. “Back then, I hardly spoke any German and was no doubt the cause of many strange situations and much amusement,” he recalls and has to laugh. “But the working groups in Jülich all spoke English, so studying and communicating at the research centre with my fellow students and colleagues were never a problem.”

Berntsson lived in a youth hostel in Aachen for the first few weeks then found a room in a shared flat. He moved to Düsseldorf in 2014. “We shared a car to get to Jülich and that worked really well.” He only went home to his family in Australia once in all those years, but his father, a retired member of the armed forces, visited him in Germany at least once a year.

German-Australian network

During his doctoral studies, Benjamin Berntsson also completed a six-month internship at Henkel, a chemicals multinational in Düsseldorf. “I learnt a lot there. It was really interesting to see how science is transformed into industrial practice and used to solve problems in the ‘real world.’”

Berntsson meanwhile has a lot of – English-speaking – friends and a German girlfriend, also a chemist, who earned her doctoral degree in December 2016. His favourite café in Düsseldorf is Greentrees, a “juicery” run by an Aus-

tralian lady from Sydney. According to the Federal Statistical Office, 13,000 Australians live in Germany, “many in North Rhine-Westphalia,” says Berntsson. Once a year, they meet up in April

Doctoral researchers from all over the world

for the traditional ANZAC Day, Australia’s national holiday, which commemorates the veterans of the Australian and New Zealand Army Corps and its members who died in the First World War. “In 2016 we met in Düsseldorf and in 2017 in Cologne.”

Like all doctoral researchers, Benjamin Berntsson worked in Jülich as a research assistant and supervised Bachelor and Masters internships. He is now looking for a job. As a chemist with a German doctoral degree and English as his native language he should have good career prospects in the chemistry and biotechnology sector. He is meanwhile “fluent in business German” and would like to stay in Germany, “but in any case in Europe,” he says.

P.S. When Benjamin Berntsson was handed his doctoral degree certificate at the graduation ceremony of the Faculty of Mathematics and Natural Sciences on 28 July 2017, it was a very international affair: His fellow students came from China, France, India, Iran, Italy, Cameroon, Kazakhstan, Libya, Austria and Spain.



Photo: Lukas Piel

► Professor Jörg Pietruszka, Chair of Bioorganic Chemistry (Jülich Research Centre) and his Australian doctoral researcher Benjamin William Berntsson (29). The topic of his doctoral dissertation was “Learning from Nature: Enzymes in Organic Synthesis”.

Totally detached for 22 seconds ...

Düsseldorf cardiologists conduct experiments during parabolic flight

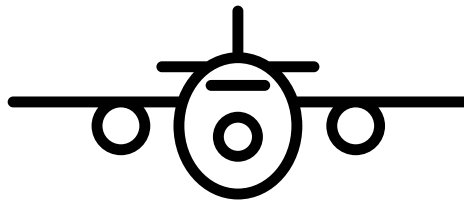


Illustration: habione-404 from The Noun Project

As one of eleven teams from Germany, Professor Christian Jung and Dr. Nana-Yaw Bimpong-Buta took part with a team from the Department of Cardiology, Pneumology and Angiology of Düsseldorf University Hospital in last year's Parabolic Flight Campaign of the German Aerospace Center. The flights, which started in Bordeaux, took place from 11 to 15 September 2017.

BY SUSANNE DOPHEIDE

A parabolic flight is a special flight manoeuvre in which weightlessness is produced for short phases. In the experiment with which they were allowed to participate in the 30th campaign of the German Aerospace Center last year, the Düsseldorf cardiologists examined changes in what is known as "microcirculation" under microgravity conditions with one of the most modern measuring methods in the world, a special handheld microscope the size of a smartphone. Studies with critically ill patients in intensive care units had already shown that measuring microcirculation at the base of the tongue can allow conclusions to be drawn about the patient's circulation overall. The experiment was sponsored by the German Aerospace Center's Space Administration with funds from the Federal Ministry for Economic Affairs and Energy.

In a nutshell, that was the starting point. But what exactly is a "parabolic flight" and what actually happens? The German scientists Fritz and Heinz Haber, who later appeared

as a TV journalist in programmes such as "Prof. Haber experimentiert", established the fundamental principles for parabolic flights in the USA in 1950, with the aim of creating a weightless environment for astronaut training. We remember parabolas from our maths lessons at school. A

Microgravity occurs when a parabola is flown

parabolic flight denotes the flight path or flight manoeuvre that describes a trajectory parabola open at the bottom (see figure). Extensive safety precautions were taken for this difficult manoeuvre, which was repeated several times during the day in the framework of the campaign, including ones to prevent nausea. Acceleration and the steep ascents and descents demand a lot from researchers' balance organs.

Photos: German Aerospace Center



Professor Jung: “We were given medication beforehand to stop us feeling sick and instructions on how to behave. To ensure our safety on board, safety advisors and doctors came with us.” Especially impressive, in the opinion of both researchers, were the trained paratroopers, who were able to catch people or equipment flying around in the plane. They know from their job how to manoeuvre in free fall and also went into action in the flights last year too. “This is particularly critical in the transition phase from weightlessness to almost 2 g when the plane dives,” says Jung. “Anyone who isn’t strapped back in quickly enough can injure themselves.”

“EVEN FOR EXPERIENCED PILOTS, FLYING PARABOLAS IS A CHALLENGE RATHER THAN ROUTINE.”

Professor Christian Jung, cardiologist

The Parabolic Flight Campaign of the German Aerospace Center in 2017 took place on four flight days, each with about 4 flying hours. 31 parabolas were flown on each flight. The Airbus 310 climbs steeply from horizontal flight at maximum

Steep climb

speed and at an angle of almost 50 degrees in the parabolic phase. By comparison: The angle of climb when a normal passenger jet takes off is about 15 degrees! The pilots then throttle the engines and continue along the trajectory of a parabola. This creates conditions close to weightlessness for about 22 seconds before the plane dives and its fall is intercepted before it starts on the next parabola. This means that on the four flight days of the 2017 campaign the researchers had a total of about 45 minutes of weightlessness (0 g), alternating with periods of normal (1 g) and almost double (1.8 g) gravity that they could use for their experiments. Up to 40 scientists can take part in a flight campaign



Coordination needed: Dr. Nana-Yaw Bimpong-Buta measures microcirculation at the base of his team colleague's tongue under microgravity conditions.



A unique experience for the scientists able to participate in the German Aerospace Center's Parabolic Flight Campaign.

and 11 experiments from different fields were performed on board in the 2017 campaign. "Tremendous resources have to be invested in order to stage such flights safely and create suitable conditions for the scientific experiments," say Professor Christian Jung and Dr. Nana-Yaw Bimpong-Buta, who were in charge of the cardiology experiment. "We had about a year to prepare," says Jung, starting from their application to planning the experiment and preparation on site in Bordeaux. Information down to the last detail (weight, fastening, type of fastening, sketches, equipment etc.) was requested for each experiment and the experiment itself had to be arranged in such a way that the best use possible could be made of the weightless phase of just 22 seconds. Unexpected difficulties can occur nevertheless, as are then only detected in practice. In this case, it was a laptop touchpad that failed to work during the microgravity phase. "That meant developing an alternative off the cuff," says Christian Jung, "but we managed."

Zero g in chancellor's airplane

The Airbus 310, which has been deployed for this purpose since 2015, took off from Bordeaux in south-west France. The aircraft was previously used by Germany's federal chancellors and then converted for its new function. Flights usually only take place over water. In this case, the aircraft partly had to fly out from Bordeaux over the Mediterranean as Hurricane Irma prevented parabolic flights over

the Atlantic. Even for experienced pilots, flying parabolas is a challenge rather than routine. "Three pilots flew the aircraft who are either test pilots or former fighter jet pilots," explains Professor Jung.

The Department of Cardiology had submitted a project proposal to the German Aerospace Center that targeted the study of what is known as "microcirculation" under microgravity conditions. Microcirculation is the flow of blood in the smallest blood vessels. Microcirculation is vital to the human organism, as it is an important blood reservoir, influences blood pressure, promotes heat exchange and transports oxygen and important nutrients to the cells. Only if microcirculation functions properly does the cardiovascular system function properly too. However, in microgravity there are special ambient conditions. The human organism reacts and adjusts in many different ways and this also applies, of course, for the cardiovascular system.

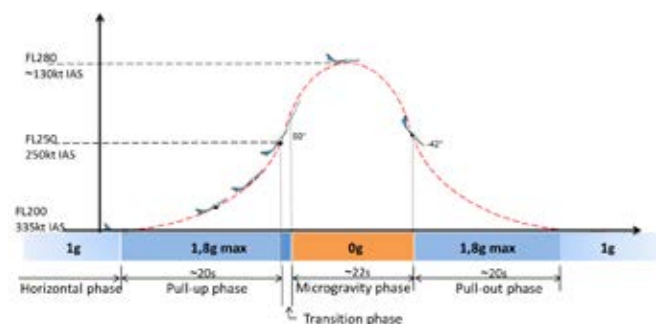


Diagram: German Aerospace Center

Schematic diagram of a flight manoeuvre

“IN MICROGRAVITY IT’S ABSOLUTELY SILENT, THE PLANE STOPS VIBRATING AND YOU FLOAT...”

Dr. Nana-Yaw Bimpong-Buta, cardiologist

Amongst the most modern ways to measure microcirculation currently used worldwide is what is known as intravital microscopy using the Microscan® microscope. Connected to a small tablet, images of blood circulation at the base of the tongue can be shown in real time as a video and stored. With this measuring technique, which is unique worldwide, the whole procedure lasts just a few seconds. The method to assess a patient’s overall circulation has already stood the test in clinical use and shows very promising results.

The two researchers brought back about 500 videos which they now want to analyse. Findings from the study could help in future to develop further diagnostic techniques to identify individuals with a higher risk of circulatory disorders and prevent foreseeable disorders from an early stage. The results are also interesting, for example, for future crews of the International Space Station (ISS). How did Christian Jung and Nana-Yaw Bimpong-Buta find the German Aerospace Center’s 30th

Parabolic Flight Campaign and their first personal parabola? Without any hesitation the reply is “Sensational! Like on a roller-coaster but much more extreme. We flew a total of 124 parabolas. In microgravity it’s absolutely silent, the plane stops vibrating and you float,” says Dr. Bimpong-Buta. Their enthu-

124 parabolas in four days over Mediterranean and Atlantic

siasm is unmistakable and they also speak highly of their experience with scientists from other disciplines, such as physics, sports science, materials research, as well as of the atmosphere amongst the participants and the first-class and very sophisticated planning and logistics of the French firm Novespace which organised the flights. Would they do it again? “Anytime!”

The aircraft

The Airbus A 310 ZERO-G was delivered by its manufacturer Airbus in June 1989 to East German airline “Interflug” and used on scheduled routes up until 1991 by the government too. In August 1991, the aircraft became the property of the German Air Force and was used from 1993 to 2011 as a VIP plane with the name “Konrad Adenauer” for travel and state visits by federal chancellors and ministers. The Airbus was stationed at Cologne-Bonn Airport in the Special Air Mission Wing of the Federal Ministry of Defence. 25 years after it was first commissioned, the “Konrad Adenauer” was sold in June 2014 to its new owner, Novespace, which carried out a large number of test flights. From September 2014 to March 2015, the plane was overhauled and converted to a parabolic flight aircraft by Lufthansa Technik AG in Hamburg.



Rankings: Düsseldorf economists come out on top

Influential in research and politics

In a research ranking by the Handelsblatt newspaper published on 11 September 2017, the economists at Heinrich Heine University were able to position themselves for the first time amongst the strongest research faculties in the German-speaking area. The ranking analyses the research papers published by all universities in Germany, Austria and Switzerland. Overall, HHU's economists ranked 17th. If only Germany's universities are taken into account then HHU is even amongst the top 10.

This means that the three Düsseldorf economists Jens Südekum (Professor of International Economics), Hans-Theo Normann (Professor of Game Theory and Experimental Economics) and Paul Heidhues (Professor of Behavioural and Competition Economics) number amongst the top 10 percent of all Economics researchers in Germany.

Over 3,000 economists in the German-speaking area were taken into consideration for the Handelsblatt ranking of the top achievers in economics research in the German-speaking area. The sole criterion was their research performance in Economics. The ranking lists were drawn up by the Swiss Economic Institute at ETH Zurich with the help of DICE. The project is supported by the Verein für Socialpolitik, the largest society of economists in the German-speaking area. The Handelsblatt ranking was published for the first time in 2006.

F.A.Z.-ranking

As in previous years, Justus Haucap, Professor of Economics and Director of the Düsseldorf Institute for Competition Economics (DICE) at Heinrich Heine University, is one of the 30 econ-

omists who are especially influential in the German-speaking area – not only in research but also in politics. This is also shown in the current ranking of economists by the FAZ newspaper, which lists him in 23rd place. Contributing factors for a place on the list include whether a researcher has a voice in supraregional media, is appreciated by politicians as an advisor and produces pioneering research that causes other researchers to cite his/her work.

Media and policy advice

The FAZ ranking, which compared to the Handelsblatt ranking is younger (it was compiled for the first time in 2013), attempts to assess the performance of an economist in Germany, Switzerland and Austria more comprehensively. It therefore examines not only research performance but also two further criteria: Media and policy advice. To be counted as one of Germany's most important economists, a researcher must make an impact in at least two areas: in science and in public, i.e. in politics and the media.

Here too, DICE is not only represented in the ranking in terms of personnel but is also responsible for collecting some of the data for the FAZ newspaper in cooperation with media research institute Media Tenor International, ECONWATCH (an independent organisation that monitors economics policy), the German National Library of Economics in Hamburg and scientific publishers Elsevier. In calculating the overall ranking, influence in media and politics each count single and influence in research counts double. C. G.

Jubilee: 100-year anniversary of the West German Orthodontic Clinic

Birthplace of German maxillofacial surgery was in Düsseldorf

BY SUSANNE DOPHEIDE



The clinic's founder: Düsseldorf dentist Professor Christian Bruhn (1868-1942)

4.5 million wounded soldiers. Most of them with limb and chest injuries and about 15 percent with head and neck wounds. Weapons with unprecedented precision and explosive power and injuries scarcely known before. The First World War (1914-1918) is regarded as one of the bloodiest chapters in recent history. The injured soldiers needed medical treatment. The First World War is therefore closely connected to the foundation of the West German Orthodontic Clinic in Düsseldorf, which celebrated its 100-year anniversary in 2017 and counts as the first institution of its type and thus as the birthplace of German oral and maxillofacial surgery.

The West German Orthodontic Clinic – today the Centre for Dental, Oral and Maxillofacial Medicine and part of Düsseldorf University Hospital – dates back to the dental practice of Professor Christian Bruhn. In 1914, he turned his surgery, which was located in three buildings in the middle of Düsseldorf, into a military hospital for soldiers with jaw injuries. “Bruhn’s clinic became the largest of its type in Germany,” explains Professor Dieter Drescher, Director of the Department of Orthodontics. “At times, over 680 beds were available. That’s an enormous number and equates to about half of Düsseldorf Univer-

sity Hospital’s total capacity today.” Bruhn’s team also conducted pioneering work in the care of often traumatised and badly disfigured patients, using techniques which were very modern at that time, such as gastric tubes. “Bruhn is also regarded as the co-founder of modern convalescence care,” adds Drescher. “He organised workshops, art therapy, concerts and writing competitions for his patients.”

Part of the Medical Academy

In 1917, Bruhn founded a registered association named “West German Orthodontic Clinic” in order to be able to keep his clinic open after the end of the war too. It was taken over six years later by the City of Düsseldorf and incorporated in the Medical Academy that had existed since 1907. About 100 beds, laboratories, x-ray equipment and radiotherapy rooms were now available as well as a darkroom.

A second leading figure in the new clinic, alongside its founder Christian Bruhn, was surgeon Dr. August Lindemann. He became Bruhn’s successor as the clinic’s executive director in 1936 and it was in Düsseldorf that he became the first professor for dental, oral and maxillofacial medicine in Germany. The Lindemann cutter named after him is still regarded today as the most frequently used bone cutter in dentistry. He held the post as director for almost 20 years. Because the buildings in the city centre had been bombed, in 1940 the clinic, which had once more been transformed into

“BRUHN’S CLINIC BECAME THE LARGEST OF ITS TYPE IN GERMANY.”

Professor Dieter Drescher, Director of the Department of Orthodontics

Photo: Archive



Patients and doctors of the West German Orthodontic Clinic during the First World War

a hospital for “frontline soldiers with facial injuries”, moved into the south wing of Himmelgeist House, a care home belonging to the City of Düsseldorf on the site of the then Municipal Hospital. This is still its home today, almost 80 years later.

At the beginning of the 1960s, the Medical Academy decided to create separate departments for orthodontic and facial surgery and dental, oral and maxillofacial medicine. The University of Düsseldorf was founded a short time later and the Medical Academy renamed

as the Faculty of Medicine. In the course of a restructuring process in 1985, five separate departments were formed at the Centre for Dental, Oral and Maxillofacial Medicine: Oral Surgery and Central Admittance; Prosthodontics; Operative and Preventive Dentistry and Periodontics; Orthodontics; and Oral, Orthodontic and Plastic Surgery. In 2014, the last in the list moved into the new Centre for Operative Medicine II together with other surgical disciplines. “West German Orthodontic Clinic”, a name so rich in tradition, was retained as part of the centre’s name.

Düsseldorf University Hospital in nationwide “Top 20” for the first time

Great success for Düsseldorf University Hospital: It ranks 20th place in the current list of Germany’s Top Hospitals published by the news magazine “Focus”, jumping up from 23rd place in the previous year.

Leap into top group

“This means that university medicine in Düsseldorf has leapt into the top group of German hospitals. This ranking is above all tremendous acknowledgement of our hospital’s staff and their performance,” says Professor Klaus Höffken, Medical Director and CEO of Düsseldorf University Hospital. “For patients, this jump shows the high quality of patient care at our hospital.”

The special issue of “Focus Gesundheit” on the topic of health-care appeared at the beginning of October 2017. According to the publishers, it is Germany’s most extensive hospital comparison. The list was based on interviews with several thousand general practitioners and consultants as well as results from a patient survey conducted by the Techniker Krankenkasse health insurers, in which about 400,000 members were asked for their personal opinion. In addition, hospitals’ quality reports and hygiene measures were analysed. Quality of patient care was also taken into account.

Düsseldorf University Hospital was recommended above all for its expertise in the following areas: Breast cancer, diabetes, heart and vascular surgery, cardiology, multiple sclerosis, orthopaedics, Parkinson’s, prostate cancer, high-risk obstetrics and radiotherapy.

S. D.

The scent of honey in the lab and cool computers

How supercomputer HILBERT helps to understand bees

BY ROLF WILLHARDT

Young biologist Christina Blut presumably has the most fragrant laboratory in the whole university. It smells – of honey! Why? Because she is a doctoral researcher at HHU’s Institute of Evolutionary Genetics and studying bees, their social order and communication. Questions include, for example: How does collective behaviour develop from individual behaviour? How do individual bees come to perform tasks that contribute to collective success (namely collect nectar, produce honey and take care of offspring)? And how do the interactions of worker bees amongst themselves influence the particular way in which they perform their respective tasks? Christina Blut: “We already know a lot. But what we don’t know is how the transition functions, what happens to make individual bees work together collectively.”

It is already clear: A bee colony organises itself according to specific rules. But how do these rules work? And in view of increasing bee mortality in recent years due to pesticides, the question arises of how an infected bee can destroy an entire colony. What happens to the way the beehive is organised? What happens on the wax combs?

In her basic research, Christina Blut is examining the bees’ movement patterns. She has colonies with up to 1,000 individuals; up to 60,000 can live in a beehive. A barcode is adhered to each individual bee, “for this we use a waterproof foil and odourless adhesive resin. Bees are very sen-

sitive to smells,” she explains. This is how she and her team marked young bees that had just hatched. “We do that because bees don’t sting in the first hours after hatching.” She can meanwhile handle up to a 100 bees an hour, she laughs.

The bees now have a code attached to their body, “a kind of number plate,” says Blut. And then we film them with a high-resolution camera on the wax comb. This tells us their respective position and even their speed and we can document where the bee has been and their contacts amongst each other, that is, their movement patterns. The result is a chart, a kind of map.” And that is where HILBERT comes into play because the volume of data is gigantic and analysing it “without a supercomputer would keep me busy for decades,” says Christina Blut.

Movement patterns documented

“We name our high-performance computers here in Düsseldorf after renowned mathematicians,” says Dr. Stephan Raub. He is, so to speak, HILBERT’s ‘father’ and responsible for looking after it too. “HILBERT’s predecessor was GAUSS, named after the German maths genius Carl Friedrich Gauß. HILBERT is named after David Hilbert, one of most important mathematicians of the modern day who died in Göttingen in 1943.”

The ingenious thing about HILBERT: Unlike the typical supercomputers of the 1980s and



Photo: Sergej Lepke

Without supercomputer HILBERT, biologist Christina Blut, MSc, would need decades to analyse data for her doctoral dissertation on bees. Next to her is Dr. Stephan Raub from the Centre for Information and Media Technology. They are standing in front of supercomputer HILBERT, which is housed in special, secure and air-conditioned IT cabinets. The computer was named after German maths genius David Hilbert (1862–1943)

“WE NAME OUR HIGH-PERFORMANCE COMPUTERS HERE IN DÜSSELDORF AFTER RENOWNED MATHEMATICIANS.”

Dr. Stephan Raub, quantum chemist

1990s, it is not a single complex system composed of special expensive components but a “computer cluster”. In other words: A bundle of 121 “normal”, commercially available computers which work together through intelligent algorithms. HILBERT’s capacity is impressive: It can accomplish 94 trillion arithmetic operations per second, “written out, that means 12 noughts after the 94,” explains Raub. Moreover, HILBERT was relatively cheap. The system cost € 2.5 million. The first supercomputer that HHU’s computer centre purchased in 1976 cost the equivalent of € 16 million and was only capable of 800,000 arithmetic operations per second.

HILBERT is, of course, housed in a particularly secure room. HPC (High Performance Computing) naturally requires electricity. But comparatively little: 54 kilowatts. And it has to be cooled; temperatures over 80 degrees would destroy the computer. That is why the air temperature in the computer cabinets is kept at a constant 21 degrees. “200,000 litres of water

flow through the system each day. That’s a German’s average consumption for four years,” says Raub. In order not to waste the precious water, it is cooled down repeatedly in a closed cycle and then pumped back into the computer cabinets. Raub is a quantum chemist with a doctoral degree who

has worked at Heinrich Heine University since 2007 and also studied there. He makes it quite clear: “The HILBERT team working at the computer centre is made up of scientists and not administrators. The HPC system is at the disposal of all faculties for research purposes. HILBERT

Fast and efficient

can save and analyse large volumes of data quickly and efficiently and we in the HPC team are experienced in writing special programmes.” In the last three years, for example, HILBERT has helped to analyse the data for 21 dissertations. The computer has played an important role in numerous research projects at the University and “its users have been able to secure € 19 million in external funding for their work in the last two years,” reports Raub, not without some pride.

Excellence Strategy: HHU reaches the finals with CEPLAS II

First hurdle in national/regional competition overcome

Heinrich Heine University Düsseldorf (HHU) has participated again in the Excellence Strategy of the national and regional governments. On 29 September 2017, the German Council of Science and Humanities and the German Research Foundation announced that HHU had been invited to submit a further full proposal for its CEPLAS Cluster of Excellence. The “Cluster of Excellence on Plant Sciences” has been conducting research since 2012 in the area of plant sciences and the challenges facing global nutrition in the future.

On 29 September 2017, the German Research Foundation and the German Council of Science and Humanities published the list of universities or research alliances invited to submit full proposals. Accordingly, HHU will apply for funding to continue its Cluster of Excellence on Plant Sciences – Smart Plants to Meet the Needs of Tomorrow (CEPLAS II).

President Professor Anja Steinbeck congratulated the successful researchers: “With the project invited to submit a full proposal, our team was able to win through, in cooperation with colleagues from partner universities, in a highly competitive environment. With their decision, the evaluators are endorsing the particularly high scientific quality of our research work and collaboration.” The research group must now formulate a convincing full proposal and submit it to the German Research Foundation.

About the CEPLAS II project

HHU is submitting its CEPLAS II application together with the University of Cologne and in cooperation with the Max Planck Institute for Plant Breeding Research in Cologne and Jülich Research Centre. It follows on from the successful CEPLAS Cluster of Excellence, which was established in 2012 in the framework of the Excellence Initiative.

Work centres on developing and optimising crops that can fulfil the food demand of a growing world population against the backdrop of climate change and its consequences. To this end, CEPLAS II wants to study the interaction of complex plant properties that influence yield and how plants adapt to limited resources. This includes such important topics as metabolism and the influence of the microbiome on growth as well as plant signalling pathways. These questions will be explored in an interdisciplinary consortium with the help of experimental and theoretical approaches.

Speaking about the opportunity to submit a full proposal, Professor Andreas Weber from HHU’s Institute of Plant Biochemistry and spokesman of the Cluster of Excellence said: “This is an important step on the way to CEPLAS II! Great thanks and credit are due to the entire CEPLAS team for this success as well as for the strong support we’ve received from our host institutions. But the real work still lies ahead of us: We have to produce a proposal concept that will convince the evaluators so that we can continue to further develop CEPLAS in the coming years as one of the best international centres for plant sciences. We’re not there yet!”

Excellence Strategy of the national and regional governments

In comparison to the Excellence Initiative (the predecessor programme), the Excellence Strategy offers a longer term perspective and will make available funds of € 533 million from 2018 onwards. There are regular calls for proposals for the two funding lines.

A total of 195 draft proposals were submitted by 63 German universities. A committee of experts comprising scholars mostly working abroad evaluated these draft proposals. They selected 88 which were invited to submit full proposals by the deadline on 21 February 2018.

A. C.



Professor Andreas Weber of HHU’s Institute of Plant Biochemistry and spokesman of the Cluster of Excellence.

Comics: An open or subversive interpretation of history

Lecture series invites an academic handling
of this popular medium



© Ari Folman / David Polonsky – S. Fischer Verlag 2017

BY VICTORIA MEINSCHÄFER

Read a comic in a tutorial? Or even during a lecture? Comics are a popular narrative form that, for a few years now, has also attracted the academic community's attention. A series of lectures entitled "Migration and War in Graphic Narratives" has taken place at the Faculty of Arts and Humanities during the winter semester, in which scholars from various disciplines reported on recent research developments. Behind the initiative is the working group "Graphic Narratives".

Right now, migration is a hot topic in all disciplines at the faculty. "Even before the refugee crisis, the topic was picked up in many disciplines in a post-colonial context and the influx of refugees in the summer of 2015 brought it back into the spotlight," explains Dr. Michael Heinze (Dean's Office of the Faculty of Arts and Humanities). He launched the working

group, which was responsible for organising this lecture series, together with his colleague Dr. Susanne Brandt from the Chair of Modern History. The working group was established two and a half years ago and takes the shape of an interdisciplinary project in which scholars from the departments of English and American Studies, German Studies, Historical Studies, Japanese Studies and Romance Languages and Literatures are engaged. This productive interaction of different subjects and perspectives is reflected in the lectures.

Fights and battles

The first lecture, for instance, given by Assistant Professor Christine Gundermann of the University of Cologne, was dedicated to the history of war comics. Gundermann showed that war

and historical events have always been a topic in graphic narratives. Already at the beginning of the last century there were comics that told heroic stories of fights and battles. War comics such as "Sgt. Rock", "Military" or "Battlefield Action" followed from the 1940s onwards. In addition, comics were produced in the USA specifically for its soldiers at the front – propaganda and instruction at the same time. "The comics' target group was clearly defined – young, white, male," says Gundermann.

Since the 1990s, comics have been seen as a medium to stimulate an interest in history amongst school pupils or the less educated. Scarcely a museum or memorial exists that does not offer workshops on comics. However, getting to grips with this medium is not easy, as Heinze experiences again and again in his classes. "Reading comics properly is hard work. Although the texts are mostly shorter, they entail a special



From: "Irmina" by Barbara Yelin, Reprodukt

reading process. And when dealing with them from an academic perspective, we notice time and again that first of all the necessary subject-related terminology needs to be learnt." This often evolves

in the comic scene and is not so easy for outsiders to understand, meaning that students have to learn the hard way that mere text analysis is not enough.

New target groups of educated citizens also became receptive to graphic narratives from the 1990s onwards. "Maus", Art Spiegelman's Holocaust comic (the original series first appeared in

1980; the German version not until 1989) and various stories about the First and the Second World War by Jacques Tardi set new benchmarks at that time. Suddenly the question arose of whether it is even legitimate to use comics as a medium to recount the Holocaust, accompanied by the question of factuality and authenticity.

“In Germany, in particular, factuality is imperative when recounting the Holo-

Aestheticisation of war

caust,” says Gundermann, “since fiction can always provide grounds for denial.” That is why it is all the more important in these stories to cite well-known pictures and include historical figures or buildings, such as the Berlin Wall, in order to highlight authenticity.

This is also essential in the case of journalistic comics, a type which, according to Heinze, is rare in Germany and so far a predominantly North American phenomenon. Like historical comics, graphic journalism is also always interpretation,

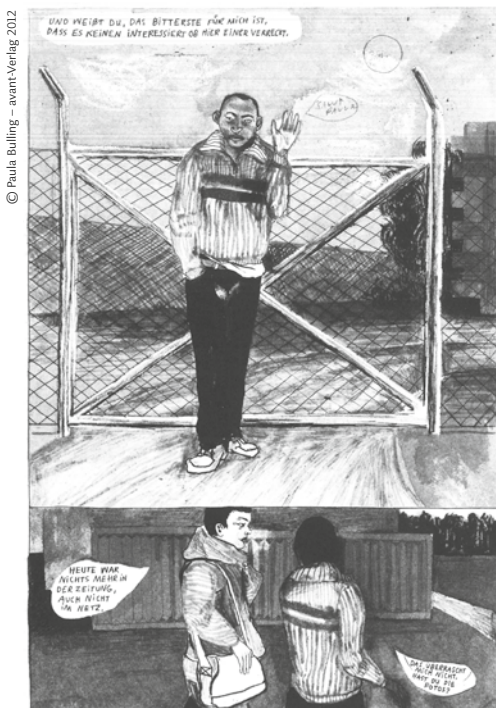
since the emotional impact is greater than that of purely journalistic texts. “Here, there are always both: Facts are relayed but at the same time the pictures create an atmosphere that gets under your skin.” Which also always entails the risk of aestheticising war, “in comics, war is often tragically beautiful,” says Gundermann.

War and violations of human rights are glossed over, which is often due to the fact that comics refer back to well-known film images. One example is Holocaust comics where aesthetics are based on “Schindler’s List”: “An author who draws comics interprets history, either openly or subversively” – and that is

something else that students should learn to recognise in the lecture series.

What do we mean by “comics”?

Comics, graphic novel, graphic narrative, bande dessinée, manga – all names for a picture story drawn by hand. For the lecture series, the term “graphic narrative” was chosen in order to focus on the commonalities and question critically the differences.



© Paula Bulling – avant-Verlag, 2012



© Ari Folman/David Polonsky – S. Fischer Verlag, 2017

The comic “Im Land der Frühaufsteher” (The Land of the Early Risers) by Paula Bulling, avant-Verlag, Berlin 2012, also deals with flight and migration.

In 2017, a new comic adaptation by Ari Folmann and David Polonsky of Anne Frank’s Diary appeared in S. Fischer Verlag.



University House

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