The Future of Hearing
Dear Readers,

Are you “lazy”? This is the term scientists use to describe people who move their heads very little during conversation. Naturally it is not meant judgementally, but merely denotes scientific interest – at least from the point of view of the researchers in the Cluster of Excellence Hearing4all. They are working, among other things, on the question of how the space-aware, intelligent hearing device of the future can adjust to the wearer’s behaviour. And different behaviours during conversation - whether this involves head nodding or not - play a key role here.

In our Focus article on the Cluster of Excellence we report on the challenges that the researchers in Volker Hohmann’s team face on the path to developing a dynamic hearing aid. In our interview with Christiane Thiel and Birger Kollmeier you can find out how much progress has been made three years after the Cluster of Excellence began its work and what its further goals are. And in the accompanying photo series we show how Oldenburg researchers in Stefan Debener’s team are miniaturising EEG technology and making it mobile.

Hearing also features, albeit indirectly, in the “Research Update” section. Musicologist Melanie Unseld talks about the legacy of singer and drawer Celeste Coltellini, for whom Mozart also composed a number of arias. Her legacy provides a new, “non-Mozart-centred” perspective on the music culture around 1800. In another article in the “Research Update” section sociologist Thomas Alkemeyer and sport scientist Mirko Brandes examine the phenomenon of self-tracking, looking at the benefits and risks of people obsessively collecting data about themselves and their bodies.

In our portrait of psychologist Ute Koglin you will also meet her closest co-workers, Perdi, Finn and Lobo – three hand puppets that Koglin takes into kindergartens to research social-emotional skills in children. We also portray musicologist Gunter Kreutz who, together with the Pius-Hospital Oldenburg, has set up a choir for people suffering from chronic lung diseases. In this article you can find out more about what motivates the musicologist.

In a guest contribution historian Malte Thießen outlines the history of vaccination and “immunity” as emblematic of the contradictory modern era. What fears and hopes fuelled vaccinations, he asks. And how have they changed perceptions of risk and safety? Legal theorist Volker Boehme-Neßler, on the other hand, is interested in why the legal world hardly ever uses images; why, in fact, it seems to actively dislike images. And yet the increasing power of images is undoubtedly having an impact on legal thought. Does this mean that the law and society are drifting too far apart?

And as if that wasn’t enough variety, a number of scientists from our University tell us about their various missions abroad, each in their very own style.

We wish you a most pleasurable read!

Yours,
the EINBLICKE editors.
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On six of the artificial islands the experts planted common saltmarsh-grass, sea purslane and sea-lavender, plants that are native to the Spiekerooger salt marshes.

"We expose the salt-marsh plants on our artificial islands to the stress of flooding to study how they cope with changes in environmental conditions."

The artificial islands are set at different heights to simulate the different flood zones of the salt marshes and ensure variations in the frequency with which the plants are exposed to the North Sea salt water. In this way the scientists analyse changes in the sea level and how they affect the vegetation.

THE NUMBER

12 is the number of artificial islands Oldenburg scientists have constructed on the tidal flats off the East Frisian Island of Spiekeroog.
"The focus is not on Mozart"

Musicologist Melanie Unseld talks about the legacy of singer and drawer Celeste Coltellini – and what it says about the classical music scene in the period around 1800.

Celeste Coltellini was a famous singer in her time. She lived from 1760 to 1828 and was part of Vienna’s classical music scene in the period around 1800 that we now associate so heavily with Mozart. But Coltellini was not just a singer; she also made a lot of drawings. Researchers have now been given access to her artistic legacy for the first time. What exactly does that legacy comprise?

As the core of a particularly interesting collection of six sketchbooks, the family, which so generously gave us access to the legacy, always made a point of documenting the fact that its female members had been artistically active across several generations. Celeste Coltellini was one of them. We have now been able to evaluate her sketchbooks. Carola Behermeier, a doctoral candidate in my department, wrote her dissertation on the subject.

Can pictures also serve as musicological sources?

Yes, absolutely. But this requires an exchange between disciplines. Here at the University the work on the theory and history of art is highly advanced and raises new questions about approaches to visual culture. It is based on the premise that the visual is not immediately evident, but rather that images “allow something to be seen.” However, they can also conceal things. It is an approach that doesn’t aim to fully interpret pictures but to see them as part of the cognitive process. This is also productive for historical musicology because here too, it is important not to use pictures in a purely illustrative way but to see them as valuable in their own right.

And you are using this approach with the sketchbooks too. What significance does this discovery have for your research into music history?

The sketchbooks provide insights into the very specific music culture of the period around 1800. Coltellini was very well connected – and we are given glimpses into her everyday life as a singer and cultural mediator because for a long time she was a prima donna in Naples, and she also performed in Vienna. Inspired by musicological gender research we ask: what really means “music” and what means “musical culture”? Because the sketchbooks reveal a very different assessment of the importance of the people who were active in this environment. The focus is not on the composer but rather on the opera as an event in which many different people participate. So here we see that the opera phenomenon is not confined to the actions of famous composers, but that those composers are active within a whole group of people. Music is therefore more than just what the composer puts down on paper.

Can you name an example?

There is one drawing by Coltellini which shows the composer Giovanni Paisiello listening to Coltellini singing as she sits at the harpsichord. Another unidentified person is also listening. But in this picture the composer is part of a sphere of activity in which the singer plays an equally active role. And that is the point here: not to focus on the work but on the event, whether it’s a rehearsal or a stage performance in which everyone plays their part – the singers, the conductor, the composer, the librettist, the impresario who makes sure everyone does what they are supposed to, the stage hands and so on.

Did Mozart and Coltellini ever meet?

Yes, and there is proof of it. Celeste Coltellini was an opera buffa singer. For ten years she was the undisputed prima donna in Naples. Joseph II, however, was always on the lookout for talented singers for his Viennese stages and he brought her in straight from Italy’s best stages. So Coltellini came to Vienna and her first season there was very successful. She was also in Vienna for a second season, but it was less successful. The precise circumstances are a little unclear. She arrived late in the city and missed some rehearsals. The sources don’t provide sufficient details. But we do know that the two were in contact with each other during that season because Mozart composed for Coltellini.

“Music is more than what the composer puts down on paper”

What do you mean by that?

The event of opera staging in 18th century never entirely goes out of the score. It was the singers, and above all the primo uomo and prima donna, who had a great influence on what was sung. This was because on the one hand the parts were specifically written for particular singers by the composer, and secondly because the singers were allowed to add their own arias to an opera, which meant that composers constantly received requests to compose them. Coltellini also came to Mozart with such a request, and he composed several ensembles for operas that she performed in Vienna. But in order to write those parts for her he would have to have been very familiar with her voice. So they did meet. And perhaps Mozart – like Paisiello – even sat next to her at the harpsichord.

Do the sketchbooks make any reference to this meeting?

One of the sketchbooks was used by Coltellini while she was working in Vienna for the second time. And that book contains the address of the house where Mozart was living at the time. Mozart had rented a house out in the country for a few months. Today, of course, that area is within the city. But back then it was a little outside the city. Such accommodation was therefore more affordable and spacious.

Did Coltellini make any drawings of her meeting with Mozart? Her Viennese sketchbook contains many pages featuring several heads in profile. Sketched encounters. One of those pages shows a profiled head which, according to the family tradition, is a portrait of Mozart. We examined the issue more closely and found indications that support that assumption. Leonhard Poesch was a famous medallist at the time who made the so-called “Gürtelschnallenrelief” of Mozart. The similarities between Coltellini’s drawing and that relief are remarkable. This and other indicators suggest that it is indeed Mozart in the drawing. But ultimately we can’t prove it.

Which is presumably not such an important aspect for your music historical research?

Precisely, this is just one small picture in a very large assortment of drawings. If we were to focus solely on the question of whether it really is Mozart, Coltellini’s role as a representative of her times would retreat into the background again. Perhaps it is a portrait of Mozart. We have good reason to believe so. But even if we could be sure, naturally it is not Mozart but a picture Coltellini drew of a musician she met in Vienna. So the question of whether it is a picture of Mozart is the wrong one to direct at this source.

Interview: Matthias Echterhagen

Literature on the subject:

[Image reference]
Making transistors a thousand times faster

A new group for young researchers is being set up at the Oldenburg University’s Institute of Physics. The Federal Ministry of Education and Research will provide Dr. Martin Silies with around 1.2 million euros in funding over a four-year period so that together with two colleagues he can develop an all-optical, nanotransistor capable of ultra-fast switching. Everyday electronic devices all feature transistors. Nowadays these electronic switches measure just a ten-thousandth of a millimetre, and millions of them can be incorporated into a single processor. It is, however, almost inconceivably small distance – thus closing the switch – at almost unimaginable rates using dye molecules. Depending on these molecules’ degree of light saturation they either allow a photon to pass or block the switching of the switch. With his team of doctoral candidates Silies plans to work initially on the delicate gold antennas into which extremely fine lines are carved using helium ions. The lines guide the photons. The team will also be testing interactions between different dye molecules and potentially also other molecules on this tiniest of all scales. Silies’ research group hopes to be able to control the process of photons crossing this almost inconceivably small distance – thus on the path to a sustainable society and anticipate consequences. “Silence of Socio-Technical Systems exemplified using the Electricity Transport and Actor System” is the title of the second project, which is based in Oldenburg and led by Prof. Dr. Ulrike Feudel, a physicist. Resilience here refers to the ability of a system to maintain key functions even when malfunctions occur. The energy systems of the future must for instance be resilient against climate change, but also against fluctuations in wind energy input. In this project economists, physicists and sociologists will work research interactions between complex networks. Computer scientists and environmental economists from Oldenburg University and its affiliated OFFIS Institute are also conducting research on energy supplies for the future in the project “NEDS – Sustainable Energy Supply Lower Saxony”, which is based at the University of Hannover. And in the project “Sustainable Consumption of Information and Communication Technologies (ICT) in the Digital Society – Dialogue and Transformation through Open Innovation”, based at Osnabrück University of Applied Sciences, computer scientists specialising in the environment and sustainability are joined by economists from Oldenburg in conducting research aimed at improving sustainability in technology consumption.

Successful sustainability research

The University was successful with not just one but two applications for project funding from the “Science for Sustainable Development” funding programme of the State of Lower Saxony and the Volkswagen Foundation. Oldenburg scientists are also involved in two other research projects on sustainability that were approved for funding. The new programme will provide around 12 million euros for eight projects in total.

Increasing wind turbine efficiency

Although high-quality wind turbines are being produced today, the goal is continual improvement. The “ventus efficiens” research project based at the Universities of Oldenburg and Hannover in the ForWind Center for Wind Energy Research, is aimed at boosting efficiency in wind turbines. The Volkswagen Foundation is providing an initial 3.6 million euros in funding for the project.

Unlike at the turn of the millennium, when scientists were concentrating on optimising individual wind turbine systems, the focus today is on wind energy production as a whole. The researchers want to improve efficiency along the entire production chain: from energy conversion to the bearing structures and drive trains all the way to the power grid connections. By reducing electricity costs, extending the service life of turbines and improving the quality of their output the project is aimed at helping upgrade the European energy system.

“Smart Cams” and public life

“Smart cams”, small intelligent cameras built into everyday objects and permanently connected to the internet, may soon completely digitise life in public spaces. Legal scholars and social scientists at Oldenburg University working together with computer scientists from the university’s affiliated OFFIS Institute analysed the technological opportunities, potential for social conflict and need for legal regulations that come with this technology in a two-year project called “ChaRiSMa”. The Federal Ministry of Research and Education is providing just over 400,000 euros in funding for the project, which is led by professor of legal informatics Prof. Dr. Jürgen Taeger.
Bacteria in the ocean: vital for the global carbon cycle

How can organic matter dissolved in the ocean carbon store over thousands of years and maintain our climate in the process? A publication by Tropical Ecology and Marine Science, marine scientists at the University of Oldenburg performed a laboratory experiment over several years. The team of five researchers led by Dr. Helena Osterholz and Prof. Dr. Thorsten Dittmar of the Institute for Chemistry and Biology of the Marine Environment (ICBM) published its findings in the prestigious journal “Nature Communications”.

The ocean stores similar amounts of carbon in dissolved organic matter abbreviated to (DOM) as are present in the carbon dioxide (CO2) in the Earth’s atmosphere. The mixture of various carbon-containing substances consists of the products of metabolism and decomposition of marine organisms such as algae. DOM forms the basis for the survival of marine bacteria, which during the degradation of these compounds release part of the carbon they contain into the atmosphere in the form of CO2. However, a large proportion of the DOM remains in the seawater for several thousands of years, as has been found to reside in the water for up to 40,000 years. Consequently, this so-called refractory DOM also known as RDOM functions as a huge, long-term carbon depot.

The question of whether RDOM is created through biological processes alone, or if, so how, it can resist bacterial decomposition for so long forms the basis of the publication. To answer these questions the researchers mixed pure, initially DOM-free seawater with natural algae and bacterial communities. Taking water samples over a period of 1014 days, they were able to observe algal growth, DOM release and decomposition processes and perform detailed analysis applying ultra-high resolution chemical methods.

The researchers examined whether the compounds produced in the laboratory were of the same molecular composition and present at similar concentrations as those in the deep sea across the globe. The results: the molecules were for the most part the same as those found in marine RDOM, but were present in very different concentrations. The ratios of the different RDOM components in the laboratory were not identical to that of oceanic RDOM.

In complex calculations the scientists determined the percentage of RDOM present in all the organic material produced in the experiment; it constituted 0.2-0.4 percent of the entire fixed carbon. "In this experiment we were able to experimentally show what has long been suspected: biological processes suffice to keep the amount of carbon stored in the ocean at stable levels," Osterholz explains.

A fragile balance that Osterholz says is highly relevant for our climate: "In the history of our planet even small variations in the concentration of oceanic dissolved organic matter have probably led to global ice ages or interglacial periods."

Interdisciplinary dialogue: the grand opening of the NeSSy research building

The new NeSSy research building provides space for 80 researchers working in the “Hearingall” Cluster of Excellence and those areas where the research centres for Neurosensory and Safety-Critical Systems intersect. Around half of the building’s 2,000 square metres of floor space is taken up by laboratories containing high-tech instruments for advancing interdisciplinary basic and applied research. These include acoustics and hearing labs as well as neurophysiology laboratories.

The scientists’ research focuses on innovations in medical technology and human-machine communication. The building houses extremely valuable research instruments such as a magnetotriescophotograph scanner, a functional MRI scanner and a “3D Virtual Reality” laboratory, as well as a conference centre. The federal government and the government of Lower Saxony shared the building’s total cost of 15 million euros. At the opening ceremony of the NeSSy building guests were given an insight into ongoing research in an interactive tour of the laboratories featuring live interviews with scientists.

Science study: homogenising biological communities

Humans are introducing increasing numbers of plant and animal species into new areas. An international team of researchers led by Prof. Dr. Henrique Miguel Pereira of the German Centre for Integrative Biodiversity Research in Leipzig has now demonstrated that the global anthropogenic transfer of species is causing the collapse of independent dissemination patterns that evolved over millions of years – with the result that different ecosystems are becoming more and more similar. Ecologist Dr. Hanno Seebens of Oldenburg University’s Institute for Chemistry and Biology of the Marine Environment (ICBM) was one of the members of the research team who authored the study. Together with scientists from Portugal, Austria and Germany he examined 175 species of snails. This means that the biological communities in Europe, America, Australia and the Pacific Rim are becoming more and more similar, whereas in similar climates, the more similar their biological communities become. "This biological homogenisation could have far-reaching consequences," Seebens said. He went on to explain that whereas in the past similarity patterns were determined by distance, nowadays climate in combination with global trade are the decisive factors. The more intensively the trading between countries with similar climates, the more similar their biological communities become. "This biological homogenisation could have far-reaching consequences," Seebens warned. The fact that humans are introducing new species all over the world puts many native species which are unable to defend themselves against the intruders under massive pressure, eventually killing them off completely, he explained. "The study shows that the introduction of ever more non-native species into new regions must be stopped if we are to ensure the survival of our ecosystems."

DFG research units to continue their work

The Research Unit “Horizontal Europeanisation”, which analyses how European societies are growing together, has secured funding from the German Research Foundation (DFG) for another three years. The DFG approved an additional 2.8 million euros in funding for seven sub-projects. Renowned scientists from nine universities are participating in the Research Unit, which is coordinated by Oldenburg sociologist Prof. Dr. Martin Heidenreich. This Research Unit focuses on so-called “horizontal Europeanisation”, which refers to the social integration and socio-cultural assimilation processes that are transcending national borders within the EU. The sub-projects are researching areas such as higher education systems, asylum administration structures, collective wage agreements and the different dimensions of social inequality. Since 2012 the Research Unit “Individuated Audiology”, coordinated by Oldenburg University, has pursued the goal of improving “hearing for all” with technological solutions. The German Research Foundation (DFG) will provide the Research Unit, led by Prof. Dr. Dr. Birger Kohlmeier and Prof. Dr. Volker Hohmann, with a total of 1.95 million euros in funding for another three years. "The work and results of this Research Unit are among the world’s best in the field of audiology," the letter of approval from the DFG stated. In addition to the Department of Medical Physics and Acoustics of Oldenburg University the HiTechCentre of Competence and the Jade University of Applied Sciences, in cooperation with the Fraunhofer Project Hearing, Speech and Audio Technology, are also involved in the project. The Unit’s research activities represent the technological core, as it were, of the “Hearingall” Cluster of Excellence.
Self-tracking is in vogue: more and more people are gathering data about their bodies. Sociologist Thomas Alkemeyer and sport scientist Mirko Brandes are studying this phenomenon – each from a different perspective.

How many calories did I burn while jogging? How high is my blood pressure? How many steps have I taken today? These are among those studying the phenomenon of self-tracking, each from a different perspective. Self-tracking is a cultural norm that has emerged in recent years, and its benefits and risks are the subject of current research.

Alkemeyer is interested in how an individual becomes a subject and, to that end, is pursuing responsible self-tracking. He explains, "There's no way of knowing whether what I am studying tomorrow will have any relevance tomorrow. At least, Alkemeyer says, this is how people today perceive their situation. They have gained a certain control over their lives and can live a reflexive life. One example is the Quantified Self movement initiated in 2007 by US journalists Gary Wolf and Kevin Kelly. On the website quantifiedself.com self-trackers can discuss the latest data and developments on self-measurement. By now there are countless internet forums where self-trackers upload their collected data and compare such things as fitness levels with other self-trackers. Most well-known sport products brands offer apps that allow their users to compare data on physical activity.

"Subjectivation is a double-edged sword," Alkemeyer explains. On the one hand self-tracking helps people gain a certain control over their lives and allows them to live a reflexive life. On the other hand they are subjecting themselves to social expectations and entering into a never-ending competition with themselves and others. Self-tracking also comes at the price of self-subjugation.

For the sociologist, one of the reasons behind this development is that in modern society, although the individual regards himself as autonomous, he always feels powerless in the face of external forces. "School education, vocational training, university – these things are less and less a guarantee for the future," explains Alkemeyer. "There's no way of knowing whether what I am learning today will have any relevance tomorrow. At least, Alkemeyer says, this is how people today perceive their situation. The shift from provision to prevention, to a social state that is increasingly obliging the individual to take responsibility for his or her welfare, is the other key factor. "Self-tracking promises that they can take charge of their own life. It authenticates in a bodily and sensible way the modern ideal of being 'master of your own destiny,'" he explains.

Brandes sees another major advantage of self-tracking methods from a scientific perspective. In another experiment, "The Oldenburg Fitness Study", he is analysing whether particularly inactive people who are put on specially designed fitness programmes actually start becoming more active. A key element of the study requires the subjects to record how much they move everyday using a pedometer over a two-week period. "We used to have to use questionnaires to gain information about physical activity in everyday life," the sports scientist explains. But this was subjective and coloured. Subjects tended to record how much they wanted to be moving instead of how much they had actually moved. "Through self-tracking the data is much more precise than it was in the past," Brandes summarises.

But what does self-tracking do to people? And why do more and more people use these methods? Why are they putting their data online and comparing it with other participants in online forums? Are people not concerned about privacy? "We are careless with our data. We have yet to develop a cultural awareness of the ways such sensitive information can be used," explains the sociologist Thomas Alkemeyer. He is the spokesman of the postgraduate programme "Self-Making. Practices of Subjectivation in Historical and Interdisciplinary Perspective."
The starting signal came in November 2012 – five years of funding for the Cluster of Excellence Hearing 4all. Mr. Kollmeier, you are the Cluster’s coordinator. Where does Hearing 4all stand at the half-way mark?

Kollmeier: It’s always hard to make an interim assessment. The sheer number of tasks involved was and still is overwhelming. But after two-and-a-half years we are able to say that the majority of the problems we wanted to tackle, we have indeed tackled – and in most cases we have already achieved substantial success.

Hearing research in the Cluster of Excellence can be roughly divided into three fields: improving hearing aids, basic research for assistive audio technology and improving diagnosis to provide better individual treatment. What have you achieved in diagnostics, for example, and in what direction is it headed?

Kollmeier: We are looking into how sound is actually processed – from the perspective of neurobiology, psychophysics and neuropsychology for example. Building on this we have developed new ways of tying up the basic research with clinical requirements, the treatment side of things, in other words. We have developed diagnostic methods which already establish international standards, the “Oldenburg Sentence Test”, for example, which exists in 21 languages.

Can you give a specific example of how you have improved treatment through diagnostics?

Kollmeier: Something that has come on in leaps and bounds recently is combining cochlea implants and hearing aids. Either on one ear so that the person hears high frequencies with the implant and low ones with the hearing aid. Or they have a cochlea implant in one ear and a hearing aid on the other. These therapeutic possibilities have only been developed in the past three years – and we have provided the underlying diagnostic basis and criteria for this. However it is not yet possible to develop the right therapy for each and every patient at the flick of a switch or even for this to be implemented globally as a software solution.

Is this a long-term goal?

Kollmeier: Absolutely. We want the standards we have developed here to be used internationally. Our internationally compatible language tests are a particularly important vehicle in this respect. By using them other scientists and partners worldwide can draw on our experience and we can distribute our standards internationally.

Ms Thiel, you are not involved with the Sentence Test specifically, but as one of the Cluster’s principal investigators you also work in diagnostics. What is your approach there?

Thiel: Our goal is to individualise diagnostics. So are there factors, beyond simple hearing loss, that can help ex...
How have the possibilities for your research expanded?  
**Thiel:** One thing that makes a huge impact at this location is our two brain imaging devices – few institutions have both in one place, and they open up exciting questions for us. The MRI scanner that I work with allows us to localise processes in the brain. And the magnetoencephalograph provides us with the temporal resolution. This means we can examine the same patient in both machines and gain an optimal comparison of the temporal and spatial dimensions. That is one aspect which substantially strengthens Oldenburg as a scientific location, even beyond the Cluster of Excellence.  
**Kollmeier:** And as well as about the machines it is also above all about the people. We have a very good mix of cooperating scientists who share the same methodology but approach the matter with very different research interests. In recent years, for example, the cognitive neuropsychology aspect has very much come to the fore. We were blind to this aspect before. Me, Thiel and the other scientists have classified our test subjects also according to central functions so that internationally we now have the best characterised stock of test subjects. This means we can run studies in Oldenburg that simply don’t exist in any other locations.  

The second field of research is better hearing devices. What is the current status here?  
**Kollmeier:** We set out to demonstra-te the principle feasibility of better hearing devices and to improve the systems technology. Our vision is to have a bit of Oldenburg in all hearing systems in ten years’ time. The prototype development is highly successful. Using demonstrators we can show the advantages of binaural – or two-ear – hearing and of scalable algorithms. The first patent has just been registered for a device that may be turned from an assistive listening system for very slight hearing impairments right into a fully functional hearing aid by button press. There have also been technological advances in cochlea implants.

“**Our advantages: entrepreneurial spirit and unpretentious collaboration**”  
**Birger Kollmeier**

What role does individualisation play?  
**Thiel:** The goal is to adjust the function of the hearing device on the basis of individual diagnosis. For example researchers have found out that when hearing-impaired patients use a hearing aid for both ears simultaneously, loud volumes in particular are heard much louder than was previously assumed. Up to now this binaural accumulative effect was not taken into account when adjusting hearing aids. They were adjusted to each ear individually, which meant patients would find the volume too loud. So then the whole hearing aid was turned down – making it too quiet at lower volumes. Studies carried out here in Oldenburg have demonstrated that binaural hearing must be taken into account to a far greater extent than it has been in the past. It may be possible to lay the foundations for this in the next two years.

And how are things going in the third field of research, basic research into assistive audio technology?  
**Kollmeier:** On the one hand we are trying to find solutions for people for whom a hearing aid is too much but no hearing aid at all is too little – and in general to integrate human-machine interfaces into audio systems. In the area of speech recognition, for instance, we have been very successful. But we are also moving in the direction of brain-computer interfaces, where we are trying to use EEG signals to help control hearing devices. Once again neuropsychology plays a key role here.

**Thiel:** That’s Professor Stefan Debener’s research group, which has developed very interesting measuring techniques. Basically we’re talking about mobile measurement of electrical brain activity – but in practice no one would want to walk around campus wearing a conventional EEG cap. So the group is trying to make these devices smaller and smaller and has reduced the electrodes to the point where they can simply be stuck behind the ears. This makes them completely unobtrusive, but they can still measure brain activity.  
**Kollmeier:** With that innovation Stefan Debener and his team have taken the global lead within just two and a half years. It’s very impressive to think that in the future we may be able to operate hearing aids and similar devices on the basis of such mobile EEGs.

**Thiel:** Mobile recording techniques are one issue here. But brain-computer interfaces based on EEG technology are still very slow and unreliable. That means we will need a lot more processing power. This is why we now have our own expert on machine learning, Jörg Lucke, who uses algorithms and statistical classification to analyse the brain signals and deduce what the person wants to do.

What is your vision for this field of research? What do you want to achieve?  
**Kollmeier:** Basically we want both technological and systems competence. Systems competence also means knowing how humans function and what they need, so in the future we can radically improve and support user-friendliness and practicability in hearing-related solutions. That means creating and controlling all the prerequisites for us being able to find solutions that are not possible today, but are already visible on the horizon.

Can you name an example?  
**Kollmeier:** Hearing devices combined with smartphones for example. Our vision is that in a few years’ time every smartphone will contain Oldenburg technology, in the form of an app, say, that helps the user to hear specific things more precisely.
Without a hearing device?

Kollmeier: Well for example I would have a small button in my ear, similar to a bluetooth headset for listening to music, and it would enable me to use hearing device technology without it really being distinguishable from a standard consumer audio device. So even people with normal hearing would benefit considerably from the technology as they go about their everyday lives, whether it’s because it provides a kind of “enhanced reality” that makes certain sources more audible or because it gives them access to additional information channels via more or less conscious control, via gestures or brain-computer interfaces. So we would be the leading system address auditory perception.

What do you personally enjoy most about your work with the Cluster of Excellence?

Thiel: The interdisciplinarity. This often gives you completely new ideas. For example I wouldn’t normally go to engineering lectures – but there you get to see things from an entirely different perspective. So it makes as lot of sense that so many different disciplines are involved in the cluster. This broad spectrum of expertise makes it unique.

“…we would like to involve our medical colleagues working in the hospitals here in Oldenburg”

Christiane Thiel

And your hopes for the future?

Kollmeier: I want the cluster to continue to develop stably. Naturally it would be good if the funding period was extended, but that’s still open. We would like to carry on with the structures that have already been put in place…

Thiel: …and also involve our medical colleagues working in the hospitals here in Oldenburg. When the project began we brought in colleagues from Hanover because we didn’t have a medical faculty here. Now more and more professors are coming to Oldenburg and are expanding the local spectrum.

Kollmeier: We don’t have the mass of traditional universities with their huge engineering and medical faculties. But our advantage is a certain entrepreneurial spirit and unpretentious collaboration which quite naturally crosses the boundaries between different disciplines. This is the only way to make progress. And preserving it is crucial – also for other areas at the University.

Interview: Dr. Corinna Dahm-Brey, Matthias Echterhagen, Delko Steb

Several members of Volker Hohmann’s research team recently once again spent a large part of their working week in the university cafeteria. Hohmann made no attempt to stop them – quite the opposite in fact. Hohmann, Professor for Psychoacoustics and one of the leaders of the Oldenburg Research Unit “Individualized Hearing Acoustics” funded by the German Research Foundation (DFG), actually seems delighted. Because the cafeteria on Wechloy Campus – in the form of a virtual three-dimensional model, please note – belongs to the team’s research territory. “Every added detail brings reality a little bit closer,” Hohmann says.

So what makes the cafeteria interesting for hearing research? It is a complex audio environment with diverse sound sources from different directions. To have a conversation there – potentially with a group of people – amidst the clutter of cutlery and mobile phone calls, requires excellent hearing. But as long as they function properly almost no one thinks about the complex processes in the ear and brain that transform sound sources into “heard information”, filtering out what is important to us. Yet almost one in six people has limited hearing – and plenty of people who have normal hearing now will be confronted with hearing impairment in the future. They all stand to benefit from Hohmann’s work. Together with his team he divides his time between the cafeteria or a busy train station with both images and sound in the laboratory, and following on from this, developing smart hearing devices that are able to analyse complex acoustics and also identify what their wearers wish to hear.

On a Monday morning in May we meet at NeSSY, the new research building on Wechloy Campus. In his office on the third floor Volker Hohmann, who is also the leading researcher in the Cluster of Excellence “Hearing4all”, lays his cycling helmet on the windowsill. One of the walls is lined with boxes of books and folders. There has been little time to unpack them in recent months, as research and setting up the new laboratory rooms have taken priority. A visit to the new building provides a glimpse of the technical
The ceiling. The room will eventually centrically around the centre of the reflections. On entering you find your-thing example: an anechoic room lined floor is a corridor full of laboratories. Hohmann's can reach a preliminary conclusion for so that in another three years' time we implementing our findings – like new phase of his work in the DFG Research arrivals in perfect time for the second setting up.

Which the physicist's team is currently which the university cafeteria as research terrain: as virtual reality on a computer terminal in the NeSSy building's foyer and on the screen in the laboratory, as well as during a quick midday visit by hearing researcher Prof. Dr. Volker Hohmann to the real "terrain".

The aim is to educate young researchers, to open up spaces for them. That is what universities are for”

The dynamic hearing device of the future, however, will be able to adjust to the specific behaviour of the person wearing it. Its ability to factor in the direction of the gaze will be particularly useful to patients who use their eyes in conversation but who barely make unconscious movements with their heads. “We call these 'lazy',” Hohmann says. He explains that between these ‘lazy’ people and those who literally hang on the lips of others and are therefore permanently moving their heads there are many different levels of unconscious, individual con-versational strategies.

Hohmann's laboratory is increa-singly conducting research into such strategies. “We use virtual reality to test hearing devices, but also to ob-serve how test subjects behave. This is providing us with a comprehensive picture of the interaction between user and environment," Hohmann explains.

The multidisciplinary approach enri-ches his research – besides computer scientists, acousticians, engineers, physiologists, and scientists from other disciplines for our hearing devices. It would make little sense to do everything ourselves,” Hohmann stresses. Instead he actively invites other experts to use his tools. “We come together on one level, each person bring-ging their own methods to the table, and we see what this achieves. Often it produces concepts that are new to us, but that’s what makes it interesting.”

So his own role – besides programming the sensors – is also involved in this. He is working in the lab to refine the technology that recognises the direction of a test sub-ject's gaze.

"Eye and head movements are ac-tually pretty easy to measure – even in a hearing aid worn behind the ear," Hohmann explains. "They also help to tell us what the hearing aid wearer is doing. Which direction is he looking in? How is he moving his head? And this is critical when it comes to moving beyond the conventional ‘head-orien-ted’ hearing aids to space-aware devices. Static hearing aids are com-pletely unable to differentiate between a wearer turning his head and sound sources circling around the wearer's head.

"The aim is to educate young researchers, to open up spaces for them. That is what universities are for.”

The university cafeteria as research terrain: as virtual reality on a computer terminal in the NeSSy building's foyer and on the screen in the laboratory, as well as during a quick midday visit by hearing researcher Prof. Dr. Volker Hohmann to the real "terrain".

refinements on offer at NeSSy – in-cluding a state-of-the-art VR room which the physicist's team is currently setting up.

This new high-tech laboratory has arrived in perfect time for the second phase of his work in the DFG Research Unit, Hohmann explains. “After three years spent developing new research tools, it is time to start harvesting the fruits of our labour. We are now im-plementing our findings – like new methods for testing hearing devices – so that in another three years’ time we can reach a preliminary conclusion for this phase of the project" Hohmann’s aim is to create smart, “space-aware” hearing aids.

“Spatial perception and naturalness – smart devi-ces should deliver both”

Three floors down on the ground floor is a corridor full of laboratories. The VR room is a particularly interest-ing example: an anechoic room lined with foam wedges to minimise sound reflections. On entering you find your-self standing on a metal grid below which more foam wedges cover the floor. Loudspeakers are arranged con-centrically around the centre of the room. A scientist is hanging more from the ceiling. The room will eventually hold 94 loudspeakers to simulate com-plex audio situations in high quality, and these will be visualised simulta-neously on a 180 degree screen.

Nineteen speakers placed towards the top and bottom of the room respec-tively will simulate the vertical reflecti-on of sounds as well as potential sound sources from these directions, such as might arise while taking the escalator in a multi-storey shopping mall. The main ring of 48 speakers placed hori-zontally at head height surrounds the screen, and targets directional hearing at the horizontal level, which is not only more sensitive but is also particu-larly important in complex conversati-onal situations.

It is in such situations that conven-tional hearing aids come up against their limits, explains the 52-year-old Hohmann, back in his office again: “They suppress disruptive sounds and amplify whatever is happening right in front of your nose. This forces the user to fixate on the speaker's lips, and even to tilt their head in exactly the direction they want to hear from.”

This means that static forward-ori-ented hearing aids actually impair the natural conversational behaviour that people with slight hearing diff-iculties in particular want to main-tain. What's more, the spatial impres-sions they deliver are poor. “Spatial perception and naturalness – smart devices should deliver both,” Hohmann emphasises.

This is precisely what he and his team hope to achieve, and they are al-ready working on a dynamic hearing device. It is gesture-controlled, and as such should be able to recognise what each individual wearer wants to hear by factoring in their eye and head movements. This is considerably more advanced than the binaural – two ear – acoustic analysis which Volker Hohmann co-developed and which won the 2012 German Future Prize. “Because these devices are of-ten unable to identify which of all the possible sources in an environment the patient wants to hear at any given moment.”

Two new technical elements are to change that. One is an acceleration sensor, similar to the ones that allow smartphones to rotate photos on the display in line with the device. In hearing devices it will register head mo-vements. The other is another sensor, which, just as electroencephalogra-phy (EEG) measures brain waves, uses so-called electrooculography (EOG) to measure the electric fields of the eyes. Oldenburg neuroscientist and EEG sensor expert Prof. Dr. Stefan Debener is also involved in this. He is working in the lab to refine the technology that recognises the direction of a test sub-ject's gaze.

"Eye and head movements are ac-tually pretty easy to measure – even in a hearing aid worn behind the ear," Hohmann explains. "They also help to tell us what the hearing aid wearer is doing. Which direction is he looking in? How is he moving his head?" And this is critical when it comes to moving beyond the conventional ‘head-orien-ted’ hearing aids to space-aware devices. Static hearing aids are com-pletely unable to differentiate between a wearer turning his head and sound sources circling around the wearer's head.

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So his own role – besides programming acoustic tools and scientific publishing – mostly involves communication with the participating scientists. “How can we bring different disciplines together and integrate them to achieve the goal of building better hearing devices?”

Hohmann sees himself to a certain extent following in the footsteps of the famous physicist Hermann von Helmholtz, an acoustics pioneer and 19th century polymath who had no fear of looking beyond disciplinary boundaries.

Hohmann's laboratory is increa-singly conducting research into such strategies. “We use virtual reality to test hearing devices, but also to ob-serve how test subjects behave. This is providing us with a comprehensive picture of the interaction between user and environment,” Hohmann explains. For Hohmann “HörTech”, the centre of competence for hearing device sys-tems engineering which was co-foun-ded by the university and where he acts as area director for research and development, is invaluable for con-solidating and utilising the various findings of his PhD students. His func-tion there, he says, is to bring together the various findings, for example from dissertations, and integrate them into a larger whole. “Otherwise you might get the odd paper, but to integrate all the work, to be able to say that we have genuinely improved a hearing device – that cannot be achieved through PhD theses alone. That's why we need this transfer facility.”

While HörTech is constantly wor-king on implementing new findings and seeking commercial applications, Hohmann's research with his team at NeSSy is different, he explains: “We don’t produce hearing devices – we create and open up possibilities,” even on trips to the campus cafeteria. (ds)
The electroencephalogram (EEG) makes it possible to record brain activity in humans in a painless procedure. This enables us to gain a better understanding of how the brain controls cognition processes such as hearing and seeing. One disadvantage of the EEG is that uncomfortable caps are needed to attach the sensor electrodes to the head.

In addition, a conductive gel must be applied, which means test subjects must wash their hair afterwards.

EEGs are traditionally carried out under controlled laboratory conditions. Test subjects should move as little as possible during the procedure.

Prof. Dr. Debener and his team are looking for new ways of conducting EEGs that are less disruptive for everyday life. He has invented so-called cEEGribs with sensors that can be placed around the ears so that hair washing after the procedure is no longer necessary.

Debener’s team combines the new sensors with a miniature EEG amplifier. Signals are recorded wirelessly, meaning cables, computers and caps are no longer needed.
Attaching the cEEGrid sensors is a quick and easy procedure. Signals can be recorded for many hours at a time. The sensors are so comfortable to wear that, like a good pair of glasses, some test subjects simply forget they have them on.

The goal is to record EEG signals as unobtrusively as possible. Test subjects are barely aware of the cEEGrid in everyday situations.

Recording the signals is equally uncomplicated – requiring nothing more than a normal smartphone.

The mobile EEG technology is a prerequisite for thought-controlled, intelligent hearing devices – an ambitious goal of the Hearing4All Cluster of Excellence. The technology can also be applied in basic neuropsychology research, neuro-rehabilitation, neurology and paediatrics.
Mission: To convey emotions

Ute Koglin uses a toy dolphin and snail shell when she applies her scientific concepts.

A portrait of an expert in educational psychology

Ute Koglin’s closest colleagues are Ferdi, Finn and Lobo. Finn is out and about at the moment. Ferdi is perched on the bookshelf and Lobo is sitting on an office chair, smiling rather idly and revealing four sharp teeth. “Oh, excuse me, just put him to one side,” says Ute Koglin. Lobo is a bright green dragon, a cuddly toy like Ferdi can serve as an emotional support. When Ute Koglin goes to give a training session at a kindergarten or primary school, she always has one of her animals with her. Finn the dolphin is currently with Ute Koglin’s students at a kindergarten in Oldenburg. “What a shame, I would have liked to introduce you to him as well,” says Ute Koglin.

Children love Finn, Lobo and Ferdi the chameleon. They stroke the animals and hug them goodbye. “The best way to reach children is using hand puppets,” Koglin explains. “Little is gained by investing a lot of energy in the wrong thing.” She uses her own training kits to show nursery and school teachers how to provide children with proper psychological support. She has developed many of the exercises herself. In the training sessions which she and her students carry out personally, she tests the effectiveness of these exercises – for example by comparing the children’s behaviour; comparing children who have undergone social training with those who are unschooled. She also organises further education for kindergarten and school teachers.

“Little is gained by investing a lot of energy in the wrong thing”

But group social training sessions are not enough. Children also need individual support for their development. Kindergarten teachers are ideally suited to provide this because of the many hours they spend with the children every day. And in kindergarten children are not under pressure to learn, as they are in school. But here, too, before a child can be helped, it is critical to first pinpoint any developmental deficits. To this end Ute Koglin worked together with Franz Petermann, a pioneer of psychological research in pre-schools. Together they developed tools which can easily be integrated into regular preschool activities. One of the forum’s aims is to professionalise psychological support for children and provide it with a scientific basis. “There are plenty of social training and prevention programmes across Germany, but some of them are pretty amateurish,” Koglin says. “They all mean well but some lack the scientific underpinnings.” Little is gained by investing a lot of energy in the wrong thing," she uses her own training kits to show nursery and school teachers how to provide children with proper psychological support. She has developed many of the exercises herself. In the training sessions which she and her students carry out personally, she tests the effectiveness of these exercises – for example by comparing the children’s behaviour; comparing children who have undergone social training with those who are unschooled. She also organises further education for kindergarten and school teachers.

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a pouty mouth which raises its spikes when it feels threatened. Its eyelids are slightly droopy, which makes it look rather sleepy. “It's perfect for children. We need to make the drawings we use much more detailed, more beautiful, more true to life.”

Before she came to Oldenburg she spent some time as the deputy Chair for Development and Pedagogical Psychology at the University of Bremen. After that she could have become a Professor for Child Health Psychology at Bremen University. But she opted for Oldenburg instead – because of the direct access to practical work through her students from Special Needs Education. But she still lives in Bremen, where she grew up: “It’s hard to believe I did my Abitur in Bremen and still managed to make something of myself!” she laughs. At the age of 13 she had a poster of an F14 fighter jet in her bedroom. That's what she was into at the time. But ultimately it was people that interested her.

When her grandmother no longer wanted to live on her own, Ute Koglin’s mother brought her to live with them. Ute Koglin witnessed her grandmother’s deterioration. She did not know the word dementia at the time. But when one day her grandmother asked, “What’s your name then?”, it was very distressing. “Then came the emotional roller-coaster of adolescence. I spent a lot of time wondering why my friends and classmates were behaving the way they were – I wanted to know what was behind it.”

And then there was Klaus Berger, who taught psychology at her grammar school. Berger was actually an econo-

myst but his way of explaining psycho-

logy was so witty and fascinating that he made the kids think they could become psychologists one day. “He was such a good teacher that even after our final exams we still all turned up for his lessons on time – even though they were on Fridays first thing in the morning.” As time went by Ute Koglin found out that six of Berger’s pupils went on to do PhDs in psychology.

Ute Koglin went to university in Bremen. After her BA in 1998 she went to the University of Erlangen-Nuremberg, just as the Erlangen-Nuremberg study was being launched – the first German longitudinal study of more than 600 children, in which psychologists analysed the effectiveness of social training. Children are the main focus of her research. “I hope I can make a difference by providing support for children at an early age. More money should really be invested in this early support!” She’s an avid people-watcher. Parents with children, and children among themselves. She finds it amusing that adults sometimes behave just like children – in the train for example, when someone cheekily refuses to get up from a seat that is reserved for someone else. “The response is not ‘I’m going to get my Mummy if you don’t move’; but ‘I’m going to get the inspector’ instead. Ute Koglin has no children of her own. But she does have Gesi, a black-and-white striped cat with a thick white stripe across its nose. Gesi is 18 already and has been with Ute Koglin throughout her academic career. There are endless photos of Gesi lying among books. “If I’d been working too long, she would come over and lay her paws across the laptop!”

Gesi in Bremen. Ferdi, Finn and Lobo in Oldenburg. And next up the masked porcupinefish. Ute Koglin’s life is full of loveable creatures. Ute Koglin likes the friendly atmosphere at her department in Oldenburg. “No elbows, it’s not all ways that way!” But perhaps it’s because of the way she is that no one feels the need to use their elbows around her. She takes people seriously, she cares about other people. On the table in her office is a small plate of sweets. Little chocolate bars and wine gums. They’re vegan of course, so that during their consultation hours the students can help themselves. (ft)
It seems that singing makes us more resilient.

Prof. Dr. Gunter Kreutz: "I felt that the question of what music does actually does with people wasn’t getting enough attention."

In cooperation with the Pius-Hospital Oldenburg he founded "Chordipus", a choir project for people with lung diseases. Gunter Kreutz is investigating why singing makes people happy.
Globetrotting scientists

Norway: Poisonous algae and water columns

The “cast off” call for the research vessel “Heincke” came in July, when we set off from Bremerhaven port for the Norwegian coast and the Trondheimsfjord and Sognefjord. In addition to the ship’s crew the “we” here refers to scientists of the Institute for Chemistry and Biology of the Marine Environment (ICBM), the Alfred Wegener Institute (AWI), the Helmholtz-Zentrum Geesthacht Centre for Materials and Coastal Research (HZG) and the Norwegian Norsk Institutt for Materials and Coastal Research (NIVA). Our goal was to learn more about the formation and distribution of toxic algae blooms. The scientists on board had a full agenda to complete within the three weeks it would take to reach our port of destination, Trondheim.

Coastal areas and fjords are highly complex marine environments. Toxic or highly concentrated algal blooms form here, a process that has been observed with increasing frequency in recent decades. We studied the distribution patterns of the poisonous algae and the underlying mechanisms, in connection with light availability and nutrients as well as general topography and hydrodynamics. Building on the success of previous expeditions, we combined biological, chemical, physical and bio-optical methods to gain an interdisciplinary perspective of the system as a whole. We sampled and characterised the water column using a “rosette water sampling system” with a built-in CTD probe (conductivity, temperature, depth). On board, the composition of algae and dissolved substances in the water were analysed. In addition we measured the local underwater light fields in order to characterise the light regime available to the algae.

Thanks to good weather and calm seas we were able to perform all stations of the study according to plan. In addition to the dominant algae Ceratium we also found cells of the toxic Dinophysis norvegica. After three weeks at sea, additional laboratory tests and the combination of all the results were next on the agenda.

Daniela Voß

South Africa: Spare parts in Port Elizabeth

As a PhD candidate in the junior research group “Cascade Use” I’m fortunate because we maintain many international contacts in countries like China, Canada and Chile. And in July I traveled to South Africa, where I met old and new contacts.

The researchers of the “Cascade Use” group are studying decisions made at the end of a vehicle’s life cycle in order to prolong the use of the materials it is made of as much as possible. The goal is to reduce the consumption of primary raw materials and the environmental damage this entails. Within the group I am examining the acquisition problems in “remanufacturing”, or in other words how components can be repaired for reuse as spare parts. My trip confirmed the fact that this is an issue of interest across the globe.

In beautiful Port Elizabeth I took advantage of the opportunity to exchange views and information with carmakers and partners from South Africa through my research activities.

Matthias Kalverkamp

South Africa: Big challenge for the partner uni

We had already visited South Africa before we left on sabbatical, but to travel to Port Elizabeth with the family and a project at the Nelson Mandela Metropolitan University (NMMU) was something very special. For us the long-term partnership between Oldenburg University and the NMMU was an opportunity to spend time abroad.

Both the guest university NMMU and the University of Johannesburg (UJ) were created by merging once white-dominated research universities with the more vocational Technikons and institutions of the once all-black Vista University. This type of university differs from the "formerly advantaged universities" of Stellenbosch, Witwatersrand and the University of Cape Town (UCT) not only as a result of integrating different institutions but because the students there mostly have poor school educations. All South African universities are called upon to play an active role in society and to act as motors of regional development – a task which presents an exceptional challenge for the NMMU, located in one of South Africa’s poorest provinces with 36 percent unemployment (2011). This made the professionalism of the research institutes at the University – in particular those in the natural sciences – which took me on as visiting professor all the more impressive. And the strategy development and implementation throughout the university in areas of social engagement in townships, sustainability and diversity management is also remarkable.

During our stay the final workshops of the Clim-A-Net project (www.clima-net.uni-oldenburg.de) and the DASIK project (www.dasik.org) took place, as did the opening event of the East and South African-German Centre of Excellence in Educational Research Methodologies and Management (CERM-ESA; www.mu.ac.ke/cermesa). What is interesting about these projects for the South Africans is above all the development and implementation of interdisciplinary structures and working methods in Oldenburg and the wide-ranging experience in teacher training, business informatics, renewable energies and sustainability research.

Prof. Dr. Bernd Siebenhüner
After giving a keynote at a conference in Brazil the director of the Department of Educational Computing and Online Learning at the King Saud University asked me whether I would like to come to his university in Riyadh as a visiting scholar.

Aside from the difficult situation for women in Saudi Arabia, the story of blogger Raif Badawi was all over the news at that time, after he was sentenced to 1000 lashes for his blog inviting in spite of all this in order to become a professor is obviously unthinkable. The conference took place in a luxury hotel the likes of which I will probably never set foot in ever again.

The segregation of men and women can become quite ludicrous at times. Questions about my talk from women scientists were relayed from the “female section” of the conference hall. One colleague from Canada told me that he had given a workshop for female professors, but he was not allowed to be in the same room with them and had to sit in front of a video camera next door. He might as well have stayed in Canada doing a video-conference.

All in all, my trip to Saudi Arabia was an absolutely fascinating experience but also a big success. So my trip was not only an amazing experience and incredible landscapes everywhere you look. I travelled to Iceland for research; I returned captivated by its landscape and the openness of its people.

What I was actually doing was collecting marine sediments for my DFG-financed research on globally distributed microbial populations. The aim of the project is to collect data on the molecular diversity of cyanobacteria in the North Sea tidal flats and to compare these with their distribution in ecologically similar but geographically distant locations. “Is everything everywhere and nature selects?” This question was posed by Martinus Willem Beijerinck (1851-1931), a Dutch microbiologist in the 19th century. Until now marine benthic cyanobacteria had not been found in arctic regions. Iceland has a strong influence on its inhabitants. Appearances are not overrated and yet everyone has their own style. Icelanders attach great importance to being able to make their own decisions. This is particularly noticeable even when it comes to tourist attractions. Natural wonders are not, as they are in Germany, plastered with warning signs. For example, at the entrance to hot springs there is a sign simply stating: Water temperatures may reach 100°C. And it is left to the individual to decide whether to dip in a finger to see if the water really is that hot.

And cyanobacteria! In my samples, analysed by PhD student Janina Vogt, there were Cyanobacteria clearly present! So my trip was not only an amazing experience but also a big success.

Quo Vadis, Belarus?

It is due to be re-erected in front of the infamous Lubyanka, the KGB headquarters in Moscow; in Minsk it is still standing today. I refer to the monument to Felix Dzerzhinsky, the founder of the Cheka, or Soviet secret police, who was born in Belarus to aristocratic Polish parentage. “Iron Felix”, who organised the Red Terror in the early Soviet times, and myself are looking at the KGB headquarters in the centre of Minsk - Belarus retained the Soviet abbreviation KGB (in Russia it is now called the FSB). The photo was taken on my last research trip to study the linguistic situation in Belarus and Ukraine.

While Dzerzhinsky and Stalin are undergoing a renaissance in Russia thanks to former KGB officer Putin’s traditionalist politics, the West hopes that the “Minsk Protocol” will prevent any further escalation of the Ukraine crisis. This is an opportunity for the Belarusian President Lukashenko to present himself as a mediator between Russia and Ukraine, and the West. Lukashenko, whose country is economically dependent on Russia, has famously refused to adopt a clearly pro-Russian stance in the Ukraine conflict, stating instead: “Everyone must respect our sovereignty and our independence. This must be remembered. And we will not cede our territory to anyone.”

The Kremlin justifies its actions in both the annexation of Crimea and the Donbass conflict saying that it is acting in the interests of the Russians, or Russian-speakers, who were supposedly either under threat or being persecuted.

I also gave a keynote at the International Conference on E-Learning and Distance Education organised by the Saudi Ministry for Higher Education.

It is incredible how much money is being invested in digitising universities by our standards, utterly unthinkable. The conference took place in a luxury hotel the likes of which I will probably never set foot in ever again.

Prof. Dr. Olaf Zawacki-Richter PD Dr. Kataryna Palinska

Prof. Dr. Gerd Hentschel

Quo Vadis, Belarus?

Several hundred kilometres in a car on streets whose names no German could pronounce, many pleasant encounters and incredible landscapes everywhere you look. I travelled to Iceland for research; I returned captivated by its landscape and the openness of its people.

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The age of immunity

What the history of vaccination can teach us about changes in modern societies.

An article by Malte Thießen

Guest contribution

We live in the age of immunity. The ‘pandemics’ of the past like diphtheria, smallpox or tuberculosis no longer scare us. The idea that we are protected against infectious diseases has become the norm, as everyday expressions about being “immune” to this or that confirm. Even the exceptions to this norm actually corroborate it. Again and again we hear about the imminent discovery of a vaccine for cancer or AIDS. Nowadays it is unthinkable, or at the very least hard to accept, that there might be diseases that we can’t or at the very least hard to accept, that there might be diseases that we can’t vaccinate against. The debates about compulsory measles vaccination and again we hear about the unimaginative approach of a total prevention state.”

EINBLICKE 2015

It is not my intention to draw easy parallels between the German Empire and the situation now. Nonetheless, I find the persistence of fundamental debates on the subject of vaccination remarkable. Because these debates were not ‘just’ about life and death. They were about society as a whole, about what is more important: the freedom of the individual or the safety of society? The history of vaccination therefore provides insights into concepts of society and how they have changed. And that is what is meant by the politicisation of immunity: the constant discussion about risk and safety, about the common good and individual wellbeing. Indeed it was this process of negotiation that made vaccination an ubiquitous point of reference for the Germans.

Regulating Immunity: The Politicisation of Vaccination

This “compulsory vaccination” met with opposition from social democrats, liberals and the Catholic Centre Party. August Reichensperger, a member of parliament for the Centre Party, used a vivid example to underpin his criticism of compulsory vaccination in the Reichstag: “People are being threatened with prison sentences! Gentlemen, it seems to me there are already more than enough opportunities to be locked away in the German Empire; but to send a mother who is convinced that vaccination against smallpox – and if necessary aged one and twelve had to be vaccinated against smallpox – and if necessary this was enforced by the police.

Seeing Immunity: The Mediatisation of Vaccination

A second trend, the mediatisation of vaccination, emerged at the start of the 20th century. Thanks to new forms of media people could read, see and soon even hear about immunity everywhere. Pictures, pamphlets and reports on the radio “translated” expert knowledge into everyday life. Mediatisation spread information to more people and changed the level of knowledge as well. At exhibitions, in magazines and radio broadcasts, medical knowledge was condensed into simple images that made immunity comprehensible to everyone. On the radio or in diagrams, immunity became tangible and personal, translating the hopes and fears of parents into everyday conversation.

The most important medium was film. From the late 1930s onwards, Germans could watch immunity at the cinema. These films were rated as “educational”, probably as a result of the clairty of their depictions. The Mayor of Munich praised a film about vaccination against diphtheria in 1942 not only for showing “with particular clarity” the administration of a vaccine, but more importantly in his opinion for showing the threat, namely a child suffering from diphtheria. Precisely that was the crucial aspect of the mediatisation process, that it gave a face to people’s fears and hopes – quite literally. Images of happy and sick children made a more

Appeals and fear were more effective in raising vaccination rates than coercive measures. The packaging of a diphtheria vaccine manufactured by Behringwerke.
convincing argument than laws and punishments.

In short, the history of vaccination is a media history with social consequences. The mediaisation of immunity not only transformed the channels through which it was conveyed to people, it also changed knowledge itself. Popular images incorporated vaccinations into everyday life, so that they became part of the German pool of experience. The most recent example of this process is a media campaign by Germany’s Federal Centre for Health Education (BGA). The campaign references the popular TV talent show “Deutschland sucht den Superstar” [Germany Seeks the Superstar] using the slogan “Germany Seeks the Vaccination Certificate” for its poster, internet and film advertising campaigns.

**Selling Immunity: Marketisation**

A third trend is tied up with the media: the marketisation of immunity. Many posters, pamphlets and films on vaccination came from pharmaceutical companies with a specific interest in popularising immunisation. The marketisation of vaccination began in Germany in the 1930s, which is significant for two reasons. On the one hand, pharmaceutical companies introduced a new tone when addressing the public under National Socialism. While the German Empire and the Weimar Republic had often relied on state decrees, the Third Reich took a more pragmatic approach, no longer forcing new vaccines onto the population through state infrastructures for marketing and distribution. Instead, the companies used the influence of advertisements to make people voluntarily accept vaccines. But how to explain that the discovery of voluntary action should come about, of all times, under this “bio-dictatorship”?

The involvement of pharmaceutical companies provides an answer. In the 1930s, large companies like “Behringwerke” coined a new brand of marketing. They not only worked closely with the press, but also made films, radio programmes and even plays for the public that played luridly on the fear of disease. This marketing was highly successful. By the end of the 1930s, voluntary vaccinations against diphtheria often reached higher levels of participation than compulsory vaccination against smallpox. Appeals and fear were clearly more persuasive than coercive measures.

The marketisation of vaccination highlights another trend, namely a shift in public health care that continued until privatisation began in the 1970s. While the production of vaccines and organisation of vaccination programmes had previously been in the hands of the state, under National Socialism, companies gained more influence. The so-called “vaccination certificate”, in which the public health department registered vaccinations against diphtheria from the 1930s onwards, testifies to this growing influence. Such vaccination certificates had a long tradition in Germany and were nothing unusual. Only when you look at the reverse of the document, which features an advertisement for Behringwerke, does it become clear why the document was unusual. The public health departments’ vaccination certificates were not issued by the state but directly by the companies selling the vaccine. So by the 1930s, the connection between certain trends was clear: the marketisation of vaccination was promoted by its mediatisation and based on its publicisation, since pharmaceutical companies used state infrastructures for marketing and distribution.

It would be naïve to describe this interaction between market, media and state as a harmonious relationship. At the very latest by the time the Federal Republic of Germany was established, major tensions became apparent, as the introduction of the polio vaccine illustrates. In 1958, Behringwerke presented a new polio vaccine for immediate launch on the market. When officials of the Federal Health Agency (BGA) demanded to inspect the production of the vaccine, they were shown the door – on the grounds of suspected “industrial espionage”. This provoked outrage in West German newspapers. Interestingly the anger was directed more at the BGA than at the pharmaceutical company. “The BGA back-pedaled” was one of the accusations levelled in the Süddeutsche Zeitung. At a time when polio diagnoses were rising all of a sudden, the state was viewed as a “naysayer” that was neglecting its duty to protect its citizens.

This case not only highlights the ties between the media and pharmaceutical companies, it also points to disputes over fundamental questions regarding the production of vaccines. Who was responsible for the safety of the German people now? The state, or private industry? The fact that this question is still controversial today, as the scandal over the swine flu vaccine in 2009 demonstrates, highlights the continued relevance of this trend: interactions between the market, media and state are still a problem today.

**Exchanging Immunity: Internationalisation**

The Germans took the final step towards the normalisation of immunity in the 1960s. During this period they witnessed the internationalisation of vaccination. At first glance this statement appears confusing; after all, infectious diseases don’t stop at national borders, and international exchange had been observed since the 19th century. And yet in the 1960s, international cooperation in the area of vaccination took on a new quality. Only then did continuous international collaboration really get started, only then did international standards for vaccinations begin to apply, and only then did the whole world become the target of the systematic vaccination programmes of the World Health Organisation (WHO). Proof of this internationalisation can doubtless be found in most households in the form of the yellow “International Certificate of Vaccination” that was introduced in the Federal Republic of Germany in the 1970s. But why did the process of internationalisation start so late?

A key reason for internationalisation was a threat that wasn’t all that new: the airplane. Airplanes were proving to be a nightmare from a health perspective. The media condensed medical knowledge into simple images that made immunity comprehensible to everyone. A late 1950s poster from the Federal Republic of Germany and an illustration from a GDR calendar of vaccination from the 1970s.
perspective. Until that point, long sea journeys had played into the hands of immunisation concepts. To a certain extent they guaranteed that diseases broke out before being introduced into a new country, and could therefore be isolated. The airplane destroyed such safety concepts. In 1956, Berlin's health senator even warned that diseases like smallpox that were believed to have been eradicated had "once again become a constant threat because of modern travel!" In the 1960s, several cases of smallpox in Germany made it clear that this warning was not exaggerated. Globalisation brought a new set of problems, for which different solutions were found by the experts.

First of all, advertising for vaccination programmes changed. The focus was no longer on the obligation to protect the "body of the German people" but rather on the safety of the individual. Vaccination programmes appealed to the interests of the individual, who was eager to become immune to global threats.

Secondly, the Germans, who were now participating in WHO programmes in Africa and Asia, were broadening their horizons. The vaccination programmes in those countries were not driven solely by humanitarian motives, but also by the interests of the individual, who was eager to become immune to global threats.

Thirdly, the focus of the competition was no longer on the obligation to protect the "body of the German people" but rather on the safety of the individual. Vaccination programmes appealed to the interests of the individual, who was eager to become immune to global threats.

Fourthly, the competition was not only driven by humanitarian motives, but also by the interests of the individual, who was eager to become immune to global threats. The "body of the German people" was no longer protected, but the individual was.

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Trend 2: The internationalisation of vaccination

The internationalisation of vaccination is a borderless project. We should look beyond national boundaries and observe international collaborations or conflicts to gain insights into the modern age. It draws our attention to ambivalences and areas of tension in modern societies, to the fraught relationship between the state and its citizens, between safety and freedom, between us and the big wide world.

An investigation of these areas of tension confronts us with a double challenge. Firstly, the history of vaccination can be examined only from interdisciplinary perspectives. Historians and medical experts, sociologists, political scientists and cultural scientists are all called on if we want to explore immunity as a concept of the modern age. Secondly, immuni-

Summary

The history of vaccination is not only a history of health and disease, of life and death. It is a history of modern society and the changes it has undergone. These changes can be understood by examining four trends: the politicisation of vaccination, its commercialisation, the marketisation of immunisation and its internationalisation. A study of the history of vaccination therefore makes us immune to over-simplified success stories of the modern age. It draws our attention to ambivalences and areas of tension in modern societies, to the fraught relationship between the state and its citizens, between safety and freedom, between us and the big wide world.

An investigation of these areas of tension confronts us with a double challenge. Firstly, the history of vaccination can be examined only from interdisciplinary perspectives. Historians and medical experts, sociologists, political scientists and cultural scientists are all called on if we want to explore immunity as a concept of the modern age. Secondly, immunisation is a borderless project. We should look beyond national boundaries and observe international collaborations or conflicts to gain insights into the negotiations with fear and safety that still accompany us today.

Prof. Dr. Malte Thießen studied German Studies, History and Educational Science at the University of Hamburg, where he also gained his doctorate in 2006. Until 2009 he was a research associate at the Research Centre for Contemporary History in Hamburg (FZH), after which he completed his practical teacher training and Second State Examination in teaching. In 2010 Thießen was appointed Junior Professor of European Contemporary History at the University of Oldenburg. He is currently also a Research Fellow at the German Historical Institute London.

Legal scholar Volker Boehme-Neßler is seeking answers in those areas where legal theory intersects with other disciplines or philosophy — his favourite area of research. "In line with the Enlightenment’s view of man, we legal experts revere reason. But progress has been made in this respect," Boehme-Neßler observes. Thanks to Sigmund Freud, he explains, we know about the importance of the unconscious and the power of emotions. He points out that neuroscience has also proven that “supposedly rational” decision-making occurs at least in part in those areas of the brain that process images and emotions.

"If, in the digital age we live in, everyone communicates through images but the law does not, the gap between law and society becomes too great, with the result that the law loses relevance." He points out that after all most laws are enforced automatically, simply by the fact that people observe them. If, however, law becomes too far removed from people’s everyday lives, there is the danger that this self-enforcing effect will be lost: "That would mean, for instance, that people would have to call the police about every little trivial thing," Boehme-Neßler explains.

A former lawyer, Boehme-Neßler says it is also his contact with his students that has shown him how deep the discrepancy between the legal profession’s perception of reality and that of wider society has become. "Legal professionals aim to be completely rational. The students, on the other hand, are heavily influenced by the internet and the world of images," Boehme-Neßler observes. "They are loath to use classic law commentaries that don’t contain even a single picture!"

"Images have an emotional impact," he summarises. "The fact that the legal system, in striving for professional distance, objectivity, and ultimately justice, tries to block out emotions along with images may be a triumph of civilisation, but it has a downside, he points out: "Many pieces of legislation block out parts of reality!"

"With the exception of road traffic regulations, construction and trademark law, the legal world is almost entirely devoid of images — even verbal images are frowned upon," he explains. Boehme-Neßler, 53, joined Oldenburg University in Autumn 2014 and teaches public law and media and communications law. Legal theory — in particular where it intersects with psychology, neuroscience, media science, politics or philosophy — is his favourite area of interest.

Boehme-Neßler is examining legal culture from the perspective of legal theory, and describes that culture, which has also shaped his thinking since his days as a law student in Berlin and Heidelberg, as “text-fixated and even image-phobic.” He is examining why the world of law refrains almost entirely from using images — and also the discovery that the growing power of images is nonetheless having an impact, or rather cannot but have an impact, on legal thinking.

His hypothesis: "If, in the digital age we live in, everyone communicates through images, in which Martin Luther wanted to distance himself from the “image-loving” Catholics, and Enlightenment culture, which postulated reason over emotion. The visualisation of the law came to an end."

"Many pieces of legislation block out parts of reality!"

"Prof. Dr. Dr. Volker Boehme-Neßler leafs through the facsimile of the medieval German law book the “Sachsenspiegel” at Oldenburg State Library. He sees the visualisation of medieval law in the book as nothing short of avant-garde.

What impact do the internet, the world of images and visualisation have on legal thought? Legal scholar Volker Boehme-Neßler is seeking answers in those areas where legal theory intersects with other disciplines. It’s just a copy — the original is locked away in a safe. Nonetheless Volker Boehme-Neßler turns the pages very carefully. Nonetheless Volker Boehme-Neßler turns the pages very carefully. Nonetheless Volker Boehme-Neßler turns the pages very carefully. Nonetheless Volker Boehme-Neßler turns the pages very carefully. Nonetheless Volker Boehme-Neßler turns the pages very carefully. Nonetheless Volker Boehme-Neßler turns the pages very carefully. Nonetheless Volker Boehme-Neßler turns the pages very carefully. Nonetheless Volker Boehme-Neßler turns the pages very carefully. Nonetheless Volker Boehme-Neßler turns the pages very carefully. Nonetheless Volker Boehme-Neßler turns the pages very carefully. Nonetheless Volker Boehme-Neßler turns the pages very carefully.

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To strengthen the link between his areas of interest within jurisprudence and approaches from psychology and neuroscience, Boehme-Neßler is contemplating a collaboration with Welschn Campus researchers. "I’d like to look beyond my own field and to learn from other disciplines," says the jurist. This, he says, would open up a number of questions for discussion, such as the opportunities and risks of illustrating court proceedings — something that so far has been permitted only in Germany’s Federal Constitutional Court.

Certainly in legal communication, Boehme-Neßler believes that it would be hugely beneficial to incorporate images and visualisation. And in the same way more frequent use of pictures would also help to reconstruct crimes in criminal trial law, to draft contracts in civil law, and in capital markets law too: “In fact there isn’t really any area of law where it wouldn’t work.” After all, the law aims to fulfill its social function and help shape society, he points out. “Improving people’s understanding of the law would also increase its legitimacy.”

Will he himself set this process in motion and use his findings to author his own illustrated law commentary? Wouldn’t that be something, “the Boehme-Neßler” on the bookshelf? “The 53-year-old laughs. “There is indeed a gap there,” he agrees. Fifteen years ago he intuitively included illustrations in a textbook he published, he recounts, so a further step in that direction would be perfectly consistent. “It would have to be an interdisciplinary project — with experts in graphics and design, perhaps also art history, and certainly psychology.” Then perhaps he could, in his own way, continue where the “Sachsenspiegel” tradition left off. (ds)
This year the Universitätsgesellschaft Oldenburg (UGO) has launched two new event formats, the Impulse Forum and the Innovation Dialogue. These events are aimed at raising awareness of the University’s vital role in regional development, UGO chairman Michael Webers explained.

The Impulse Forum, which took place for the first time on March 5, brought together over 200 young scientists and junior executives from the business community, culture and local administration to discuss “The Necessity and Limits of Economic Growth”. The event was designed to address socially critical issues – and at the same time to provide an exchange and networking platform for young executives and researchers. Initiator of the event and second UGO chairperson Swea von Mende explained that it aims not only to promote the interests of the target group itself but also to benefit the region as a whole. The Impulse Forum will be held annually.

The Innovation Dialogue, launched on 23 July 2015, is also designed to “promote future businesses in Oldenburg in and for the region” as the Junior Professor for Female Entrepreneurship Dr. Stephanie Birkner phrased it. Participants were also introduced to the University of Oldenburg’s Founding and Innovation Center (GIZ) as part of the event. The GIZ is the central contact address for students, young scientists and former students of regional universities who want to start up a business. The service includes consultations on funding, coaching, qualifications and mentoring. 180 consultations have already been given. The University of Oldenburg received a funding award from the Federal Ministry for Economic Affairs, which commended it as one of the three best “Entrepreneur Universities” in Germany. This money supported the founding of the GIZ.
New Appointments

Sabine Aisenbrey
Ophthalmology

Prof. Dr. Sabine Aisenbrey, previously acting consultant at the University of Tübingen's Department of Ophthalmology, has been appointed Professor of “Ophthalmology”. She is also the director of the University Clinic for Ophthalmology at the Pius-Hospital Oldenburg. Aisenbrey studied Human Medicine and Philosophy at the University of Cologne, where she also completed her MD in 2001. From 2002 to 2004 she taught and carried out research as a post-doctoral fellow at Tufts University (Boston/USA). She then worked at the University of Tübingen Eye Clinic as a consultant before her Habilitation in 2008. In 2010 Aisenbrey played a key role in the introduction of retinoblastoma therapy and took charge of the interdisciplinary care centre for children with retinoblastoma at the University Hospital Tübingen. Aisenbrey has received several awards for her research, including the German Ophthalmological Society’s sponsorship award and the Macula Research Prize for Preventing Blindness awarded by the Pro Retina Deutschland Society.

Stephanie Birkner
Female Entrepreneurship

Dr. Stephanie Birkner has been appointed Junior Professor for Female Entrepreneurship. Previously at the Jade University of Applied Sciences she was Acting Professor of “General Business Studies in particular Corporate Strategic Planning Simulation”. Birkner studied Business Consulting at what is now the University of Applied Sciences Emder/Leer. She then conducted research and taught at the Department for Business Administration, Economics, and Law at the University of Oldenburg where she as well acted as an equal opportunities representative. Birkner completed her PhD with research on the value of ambiguity in consultancy. She also trained as a counselor/personal coach and has worked as a freelance counselor and coach. In 2013, as part of the University of Oldenburg’s Gründerpreis awards for business innovation, she won an award for supporting entrepreneurs. At the entrepreneurial University of Oldenburg Birkner aims to raise awareness about entrepreneurship among women and develop concepts to provide them with support. Her research findings flow directly into entrepreneurships, teaching and start-up consultancy.

Alexey Chernov
Mathematics

Prof. Dr. Alexey Chernov has been appointed Professor of Mathematics Specialised in Numerical Methods and Simulation. Before coming to Oldenburg he taught numerical analysis and simulation as an associate professor at the University of Reading (UK). Born in Moscow in 1961, Chernov studied Mathematics at Lomonosov Moscow State University. He completed his PhD degree at the University of Hannover, where he also took a position as a research associate. From 2006 to 2008 he was a post-doctoral researcher in applied mathematics at the Seminar for Applied Mathematics of the Swiss Federal Institute of Technology ETH in Zurich, and then was appointed professor at the Cluster of Excellence at the Hausdorff Center for Mathematics, University of Bonn. His research focuses on the construction and analysis of numerical methods for solving partial differential and integral equations, in particular for use in models under uncertainty. His research interests include finite element methods, numerical integration, approximation for high-dimensional problems, numerical methods for contact problems and discretization of nonlocal operators.

Michael Feldhaus
Microsociology

Prof. Dr. Michael Feldhaus has been appointed Professor of Microsociology. Feldhaus, who had already taken on the professorship as deputy professor in 2013, was previously a research assistant at the EMPS Institute, University of Bremen. Feldhaus studied Political Science, Sociology and Family Science at the University of Oldenburg and gained his PhD under the Oldenburg sociologists Prof. Dr. Dr. Rosemarie Nave-Herz and Prof. Dr. Walter Siebel on “Mobile Communication in the Family System”. Between 2004 and 2010 he was project coordinator for the Applied Mathematics of the Swiss Federal Institute of Technology ETH in Zurich, and then was appointed professor at the Cluster of Excellence at the Hausdorff Center for Mathematics, University of Bonn. His research focuses include the analysis of social inequality in the life courses as well as biographical transitions – like partnership foundation, marriage, remarriages, separation – and their consequences for the life course. His research interests are the social conditions for development in children and youth, the relationship between the parental home and school, as well as the impact of occupational mobility on partnerships and family.

Michael Freitag
Health Services Research

Prof. Dr. Michael Freitag has been appointed Professor of General Medicine Specialised in Health Services Research. He was previously the deputy department director and leader of the residency programme for general medicine at the University of Heidelberg. He took the United States Medical Licensing Examination and earned his MD at the Department of Neurology at Heidelberg University Hospital. He completed the post-doctoral programme "Master of Public Health" at Johns Hopkins University (Baltimore/USA), as well as the advanced programme "Public Health and Preventive Medicine". In 2006 Freitag was certified in the US as a specialist in Internal and General Medicine. He then worked as a research assistant at the ZSt. His PhD in 2008 was followed in 2011 by his Habilitation with a thesis on "Health Services Research with Routine Data from Health Insurance Funds: Possibilities and Limits". Freitag is coordinator of the research group “Validation and Linkage of Secondary Data” at the German Network of Health Services Research (DNNF). His research interests include processes and quality of care for elderly and multimorbid patients as well as dementia sufferers. He also conducts research into pharmacoepidemiology, the results of decisions in health policy as well as care for patients with mental disorders.

Falk Hoffmann
Health Services Research

Prof. Dr. Falk Hoffmann has been appointed Professor of Health Services Research. Previously he worked in the Department of Health Economics, Health Policy and Outcome Research (ZeS) at the University of Bremen. After training to be a nurse Hoffmann studied Health Science and Nursing Studies “Teaching in Bremen. As well as the first state examination he completed a Masters in Public Health. He then worked as a research assistant at the ZSt. His PhD in 2008 was followed in 2011 by his Habilitation with a thesis on “Health Services Research with Routine Data from Health Insurance Funds: Possibilities and Limits”. Hoffmann is coordinator of the research group “Validation and Linkage of Secondary Data” at the German Network of Health Services Research (DNNF). His research interests include processes and quality of care for elderly and multimorbid patients as well as dementia sufferers. He also conducts research into pharmacoepidemiology, the results of decisions in health policy as well as care for patients with mental disorders.
Prof. Dr. Martina Kadmon has been appointed Professor of Medical Training. Previously she was a senior consultant at the surgical clinic of Heidelberg University Hospital. Kadmon studied Human Medicine at the University of Heidelberg, where she also completed her M.D. Her practical training year was spent at the university clinic at the Hebrew University of Jerusalem and at the teaching hospital in Bruchsal. Since 1996 she has been a specialist for general surgery and in 2008 she completed a “Master of Medical Education” at the University of Bern. She then habilitated in Surgery at the University of Heidelberg. At the medical faculty there she established a central programme for the evaluation of teaching and university quality management and developed among other things a concept for selecting bowel disorders.

Frank Köster
Computer Science

Prof. Dr. Frank Köster, computer scientist, has been appointed Professor of “Intelligent Transport Systems Design”. Köster also runs the “Automotive Systems” research department at the Institute for Traffic Systems Technology of the German Aerospace Centre (DLR) in Braunschweig. Köster was one of the first computer science students at Oldenburg University – he began his degree in 1989, a year after the department was founded. He went on to become a research assistant at the affiliated OFFIS Institute and completed his doctorate in 2001 in the research group “Programming Languages and Systems”. He then became a research associate in the Offis Institute for Information Technology. Köster has led the 60-strong automotive team of engineers, psychologists and computer scientists which is working on assistance and automation systems for intelligent transport technology. In addition Köster also taught at the Universities of Osnabrück and Oldenburg.

Hubert Löwenheim
Medicine

Prof. Dr. Hubert Löwenheim has been appointed Professor of Otorhinolaryngology. He is also director of the University Clinic for Otorhinolaryngology at the Evangelisches Krankenhaus Oldenburg. Before coming to Oldenburg he was deputy medical director at the University Hospital Tübingen. Löwenheim studied Human Medicine at Coeth University Frankfurt, where he completed his doctorate in hearing research in 1999. He did his practical year in Otorhinolaryngology at Harvard University’s Massachusetts Eye and Ear Infirmary (Boston, USA). After several research stays in the US and UK he earned his Habilitation at the University of Hamburg, where he also completed his PhD. He then moved to Zurich and attained his Habilitation at the University of Tübingen with research on Regenerative medicine of hearing. There he led the “Molecular Otology” research group at the university’s hearing research centre. His clinical activities focus on otology and neurotology including hearing implants and cochlea implants, oncological head and neck surgery with plastic reconstructive microsurgical procedures, as well as interdisciplinary skull base surgery.

John Neidhardt
Human Genetics

Prof. Dr. John Neidhardt, molecular geneticist and biologist, has been appointed Professor of Human Genetics. Before Neidhardt came to Oldenburg he was deputy director of the Institute for Medical Molecular Genetics at the University of Zürich, where he also led a research group. A major aim of his research is to develop new forms of therapy in genetically transmitted diseases, particularly those related to the retina. Neidhardt studied Biochemistry at the University of Hanover and Molecular Biology at the University of Hamburg, where he also completed his PhD. He then moved to Zürich and attained his Habilitation at the University of Zürich. He is also the director of the University Clinic for Otorhinolaryngology. Neidhardt got his doctorate in hearing research in 1995. He did his practical year in Otorhinolaryngology at Harvard University’s Massachusetts Eye and Ear Infirmary (Boston, USA). After several research stays in the US and the UK he earned his Habilitation at the University of Hamburg, where he also completed his PhD. He then moved to Zurich and attained his Habilitation at the University of Zürich with research on Regenerative medicine of hearing. There he led the “Molecular Otology” research group at the University’s hearing research centre. His clinical activities focus on otology and neurotology including hearing implants and cochlea implants, oncological head and neck surgery with plastic reconstructor microsurgical procedures, as well as interdisciplinary skull base surgery.

Mehtap Özşalan
Electrocatalysis

Dr. Mehtap Özşalan has been appointed Junior Professor for Electrocatalysis. Previously she worked as a research assistant at the “Electrochemistry Laboratory” at the Paul Scherrer Institute in Villigen (Switzerland). Özşalan studied Chemistry at the TU in Berlin, where she also completed her PhD in 2012. Her thesis on “Oxygen Reduction on Core-Shell Nanoparticle Catalysts for Fuel Cells” won the European Unicore Scientific Award. In 2007 she won the Clara von Simson Prize for the best diploma dissertation in the natural sciences and engineering. As a postdoctoral researcher Özşalan was awarded a sponsorship from the Fast Track Programme of the Robert Bosch Foundation – a career programme promoting excellence in young women scientists. Her research focuses include the development of new and improved nano-structured electrode materials for fuel cells and electrolystes. Özşalan is an alumna of the Lindau Nobel Laureate Meeting funding programme and was one of the speakers at this year’s opening matinée.

Alexandra Philipsen
Psychiatry

Prof. Dr. Alexandra Philipsen, previously acting consultant at the Clinic for Psychiatry and Psychotherapy at the University Medical Centre Freiburg, has been appointed Professor of Psychiatry and Psychotherapy. She is also the director of the University Clinic for Psychiatry and Psychotherapy at the Karl-Jaspers-Klinik. After studying Romance Studies and the Classics, Philipsen studied Human Medicine at the University of Freiburg, where she obtained her doctorate in 1999. She specialised in Psychiatry and Psychotherapy at the university hospital there. In 2006 she became a consultant and was then appointed acting consultant in 2011 and led a BMBF multi-centre study on the treatment of ADHD in adults. Philipsen, who earned her Habilitation in 2009, has taught at a number of institutions and also works as a supervisor and reviewer. She has received several awards including the DCCPN Prize for Medical Psychotherapy and the Saarland ADHD Research Award. Her scientific research focuses on developing new concepts for stress and emotion regulation.
New Appointments

Rainer Röhrig
Medical Informatics

Prof. Dr. Rainer Röhrig has been appointed Professor of Medical Informatics. Before coming to Oldenburg he was a physician and research associate at the Department for Anaesthesia and Intensive Care Medicine, University Hospital Gießen. Röhrig studied Computer Science in Bonn before enrolling to study Human Medicine at the Universities of Gießen and Cologne. He obtained his doctorate with research on computer aided monitoring and predicting of adverse events during anesthesia. Röhrig has led the Working Group Medical Informatics in Anaesthesiology and Intensive Care Medicine in Gießen and was a member of the medical faculty’s ethical committee. He is active in scientific societies, especially DIVI, gjmds and TMF. In Oldenburg he intends to expand his two scientific emphases: on the one hand, the question how information and technology can enable and support medical research, on the other hand, chances and risks prone to outliers. In addition, he is interested in the working group Medical Informatics in Anaesthesiology and Intensive Care Medicine (ITWM) in Kaiserslautern, where he led industry projects with the financial support of the European Commission under his leadership. Röhrig received the award of the Fachgruppe „Lubo aus dem All!“ for Kinder mit hohen Risikobelastungen. He is active in scientific societies, especially DIVI, gjmds and TMF. In Oldenburg he intends to expand his two scientific emphases: on the one hand, the question how information and technology can enable and support medical research, on the other hand, chances and risks prone to outliers. In addition, he is interested in the working group Medical Informatics in Anaesthesiology and Intensive Care Medicine (ITWM) in Kaiserslautern, where he led industry projects with the financial support of the European Commission under his leadership. Röhrig received the award of the Fachgruppe „Lubo aus dem All!“ for Kinder mit hohen Risikobelastungen. He is active in scientific societies, especially DIVI, gjmds and TMF. In Oldenburg he intends to expand his two scientific emphases: on the one hand, the question how information and technology can enable and support medical research, on the other hand, chances and risks prone to outliers. In addition, he is interested in the working group Medical Informatics in Anaesthesiology and Intensive Care Medicine (ITWM) in Kaiserslautern, where he led industry projects with the financial support of the European Commission under his leadership. Röhrig received the award of the Fachgruppe „Lubo aus dem All!“ for Kinder mit hohen Risikobelastungen.

Peter Ruckdeschel
Mathematics

Prof. Dr. Peter Ruckdeschel has been appointed Professor of “Mathematics Specialised in Applied Statistics”. Ruckdeschel studied Mathematics and Mathematical Economics in Bayreuth and Bordeaux. He obtained his PhD in statistics at the University of Bayreuth, where he remained at the university as a research associate. His dissertation entitled “Approaches for Robustifying the Kalman Filter” won him the award of the Fachgruppe „Lubo aus dem All!“ for Kinder mit hohen Risikobelastungen. He has contributed to the open source statistical software R. In Oldenburg, he intends to expand his two scientific emphases: on the one hand, the question how information and technology can enable and support medical research, on the other hand, chances and risks prone to outliers. In addition, he is interested in the working group Medical Informatics in Anaesthesiology and Intensive Care Medicine (ITWM) in Kaiserslautern, where he led industry projects with the financial support of the European Commission under his leadership. Röhrig received the award of the Fachgruppe „Lubo aus dem All!“ for Kinder mit hohen Risikobelastungen.

Fakultät I - Bildungs- und Sozialwissenschaften

Jana Alber, Thema: „Partnerschaften nach Schlaganfall – Untersuchung zu Förderfaktoren und Barrieren im Rehabsilationsprozess“ (Sonderpädagogik)

Jan-Patrick Braun, Thema: „Pädagogik im Museum. Eine Untersuchung zum Professorenverständnis aus der Perspektive museumspädagogischer Fachkräfte in Kunstmuseen.“ (Pädagogik)

Katharina Dutz, Thema: „Interessenförderung am Bereich der Technischen Bildung – Das Projekt Technik-schwerpunkt an der Robert-Danne mann-Schule in Westerstede.“ (Pädagogik)

Kaja Früchtnicht, Thema: „Wirk samkeit eines Hörtrainings bei Kindern mit Sprachverständnisschwerden im Vorschulalter.“ (Pädagogik)

Christian Geldermann, Thema: „Er folgericher Mathematikunterricht in der gebundenen Ganztagsschule. Eine qualitative Studie.“ (Pädagogik)

Dennis Hövel, Thema: „Adaption und Erweiterung des Präsentationspro grammms „Lumo aus dem All!“ für Kinder mit hohen Risikobelastungen.“ (Sonderpädagogik)

Marianne Irmler, Thema: „Psycho motorisch orientierte Körper- und Selbstoprozessförderung von Jungen mit Drehenmuskelachylopie. Einzelfallsstudien im Multiple Baseline Design.“ (Sonderpädagogik)

Christa Lampke, Thema: „Das Bil dungspotential des Schülerbetrieb splatzkums. Die Perspektive von Schülerinnen und Schülern als Ausgangs punkt für eine Neuorientierung.“ (Pädagogik)

János Lilienthal, Thema: „Beein flussungsfaktoren der Diffusions geschwindigkeit einer At-the-bot tom-Innovation in einem regionalen Bildungswerk.“ (Pädagogik)


Christian Pfeil, Thema: „Zum Aus stiegprozess aus rechtsextremen Szen ezusammenhängen.“ (Pädagogik)


Jana Rogge, Thema: „Verteilungs präferenzen und Akzeptanz perso nenbezogener Priorisierung im Ge sundheitsystem – gesellschaftliche Einstellungen in internationalen Ver gleichs.“ (Sozialwissenschaften)

Marie-Christine Vierbuchen, Thema: „Förderung sozial-kognitiver Infor mationsverarbeitung im Jugendalter. Konzeption und Evaluationsförd erprogramm unter besonderer Berück sichtigung spezifischer Risikofaktoren für schulischen Dropout.“ (Sonderpädagogik)

Thorben Wist, Thema: „Feldtheoreti sche Analyse der Bedeutung von neuen Technologien für ein selbstbestimmtes Leben von Menschen mit einer Beeinträchtigung – Identifikation mögli cher Förderfaktoren und Barrieren.“ (Sonderpädagogik)

Fakultät II - Informatik, Wirtschafts- und Rechtswissenschaften

B Stefanick, Thema: „Analyse der Integration von Elektromobilität in bestehende Mobilitätsstrukturen unter Berücksichtigung ökonomischer, ökologischer und politischer Aspekte.“ (Betriebswirtschaftslehre)

Jörg Bremer, Thema: „Con strain-Handling mit Supportvektor Dekodern in der verteilten Optimie rung.“ (Informatik)

Kai Brinkmann, Thema: „Neue Ar beitsplauspraktiker für Mitarbeiter mit kritischen Tätigkeitseinschrän kungen in der deutschen Automobil branche.“ (Betriebswirtschaftslehre)

Christian Dänkas, Thema: „Integra tion von Technologieroadmaps in die Planung der Unternehmensarchitekt ur von Energieversorgungsun ternehmen.“ (Informatik)

Andreas Eggert, Thema: „Direct Handling of Ordinary Differential Equations in Constraint-Solving-Based Analysis of Hybrid Systems.“ (Informatik)

Lena Marie Glunz, Thema: „Die Entwicklung eines Modells zur in dividuellen ressourcenzentrierten Veränderungswahrnehmung und eine Perspektive der Förderung ausgewählter Ressourcen im organisationalen Weiterbildungskontext.“ (Betriebswirtschaftslehre)


Kevin Grecksch, Thema: „Adaptive Water Governance. Conclusions and Implications Regarding Adaptive Co gnition and Property Rights.“ (Betriebswirtschaftslehre)

Philipp Gringel, Thema: „Unter nehmensspezifische Anpassung von Enterprise Architecture Frameworks.“ (Informatik)

Kim Grüttner, Thema: „Application Mapping and Communication Synthe sis for Object-Oriented Platform-Based Development.“ (Informatik)

Jörn Heinrich, Thema: „Private Kapitalanlagen im Spannungsfeld von Pro duktdarstellung und Verbraucher schutz.“ (Rechtswissenschaften)

Sebastian Heldmann, Thema: „Dienstliche Nutzung privater Endgeräte (BYOD) und privater Ge brauch betrieblicher KommunikationsmitTEL.“ (Rechtswissenschaften)

Kai Brinkmann, Thema: „Neue Ar beitsplauspraktiker für Mitarbeiter mit kritischen Tätigkeitseinschrän kungen in der deutschen Automobil branche.“ (Betriebswirtschaftslehre)

Christian Dänkas, Thema: „Integra tion von Technologieroadmaps in die Planung der Unternehmensarchitekt ur von Energieversorgungun ternehmen.“ (Informatik)

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