



JUNGE
AKADEMIE
MAGAZIN
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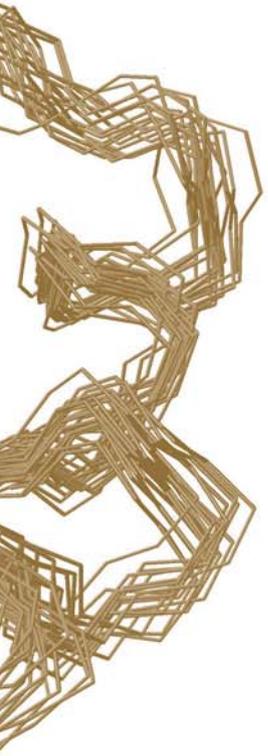
Visualisation – Do Pictures Create Knowledge?

COMMENT

Remarks on “performance-based” salaries

JA INSIGHTS

New Members, Projects, International Networking



THE JUNGE AKADEMIE

The *Junge Akademie (JA)* was founded in 2000 as a joint project of the Berlin-Brandenburg Academy of Sciences and Humanities (*Berlin-Brandenburgische Akademie der Wissenschaften – BBAW*) and the German National Academy of Sciences Leopoldina (*Deutsche Akademie der Naturforscher Leopoldina*). It is the first academy for the new academic generation worldwide. The *Junge Akademie* is supported by both parent academies, the BBAW and the Leopoldina. Since 2011, it has been put on an institutional footing. It has received significant support from the Federal Ministry of Education and Research (*Bundesministerium für Bildung und Forschung*) and has been permanently incorporated into the budget of the Leopoldina. Its fifty members, young academics from German-speaking countries, are dedicated to interdisciplinary discourse and are active at the interfaces between academia and society.

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In demand more than ever – and therefore demanding that we ask questions: photos and other types of visualisation

EDITORIAL

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EDITOR'S LETTER

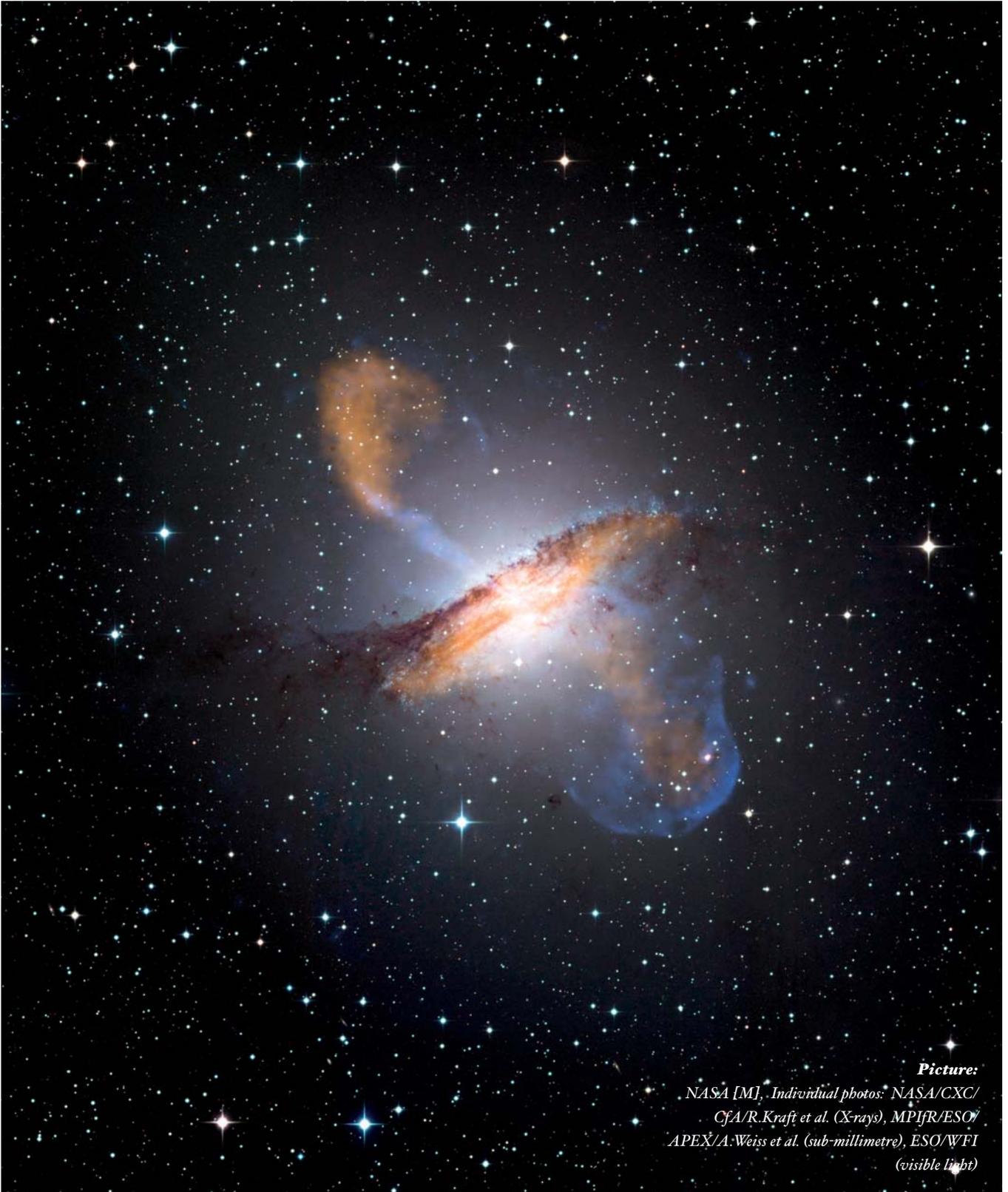
'Intellectual property is the oil of the 21st century', said Mark Getty, founder of the photo agency Getty Images. The agency no longer belongs to him, although he and executive director Jonathan Klein continue to hold shares in the company. In August 2012, the photo agency was sold to the US private equity company Carlyle for 3.3 billion dollars.

This issue of the *Junge Akademie Magazin* takes up the subject of visualisation in the dossier. How are things portrayed in science when they are too small to see? How do natural scientists construct the world of particles in general and for didactic reasons? How do they combine measured data in order to create a picture of the internal workings of a galaxy? Are there good and bad ways of handling pictures, for instance in medieval studies? Where are the limits of visualisation in life and in art? The way scientists visualise data can influence their future research, both in terms of content and in their career.

Whether in the media, in academia, or in art – visuals are in demand more than ever. At the same time they are under pressure: with photo agencies, pricier agencies have had competition for years; so-called microstock agencies sell amateur photos in the cent range. Photo agencies double as archives, and archives do not always quote the correct sources: the history of an image and its use today can be decontextualised and thus lead to false conclusions – another subject in our focus.

Finally: what role does digitalisation play in all of this? The internet is widely regarded as a large archive, but in his guest article, *JA* alumnus Oliver Grau asks whether contemporary culture and media art might be threatened by loss.

On behalf of the editorial team, I hope you enjoy reading our magazine!
Evelyn Runge

**Picture:**

NASA [M], Individual photos: NASA/CXC/
CfA/R.Kraft et al. (X-rays), MPIfR/ESO/
APEX/A.Weiss et al. (sub-millimetre), ESO/WFI
(visible light)

SCIENCE/FICTION

Truth, sham or deception? Visualisations between reality and construction

BY ULRICH PONTES

DISTANT GALAXIES AND ASTROPARTICLE PHYSICS

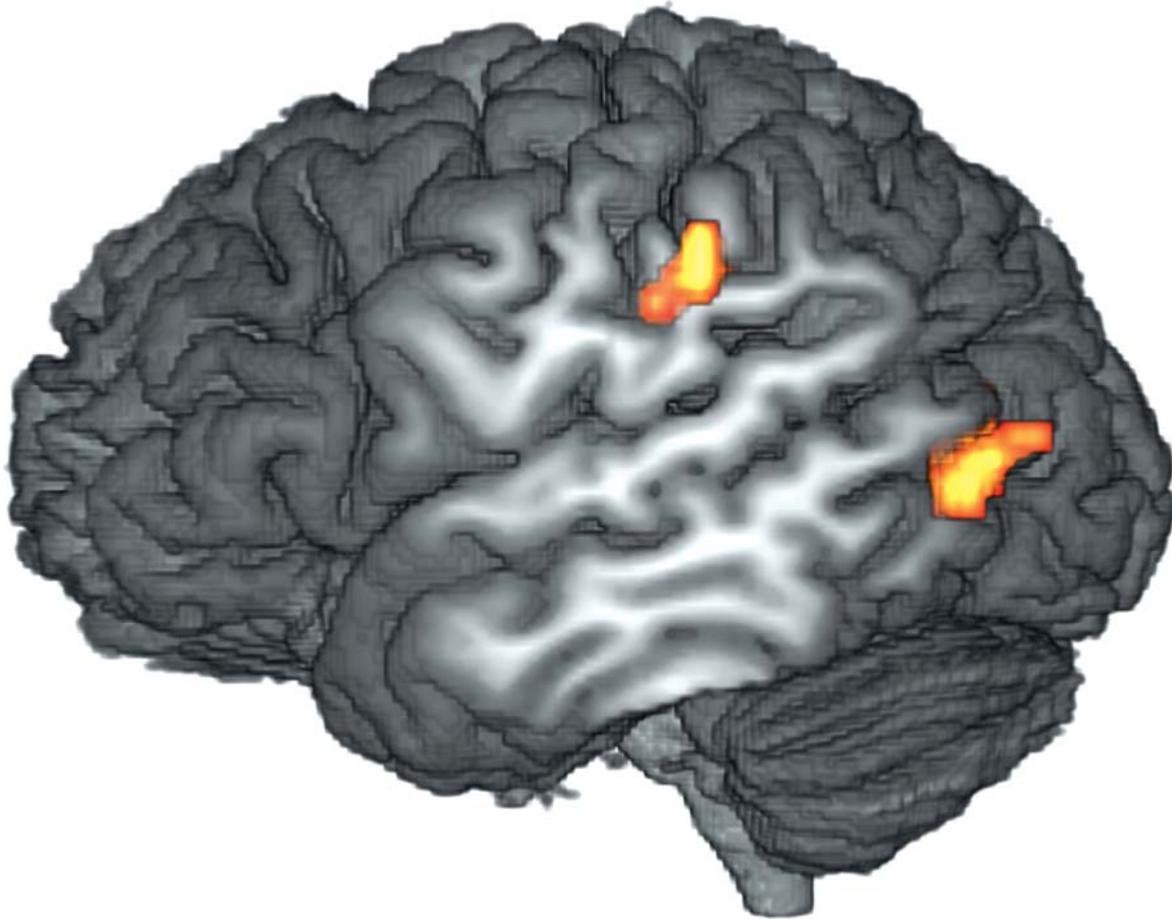
A spectacular luminous phenomenon in the night sky? Through a normal telescope, no matter how strong, our neighbouring galaxy Centaurus A would never appear as such a colourful, dumbbell-shaped object. To our eyes, the object, which is roughly eleven million light years away, is actually only a bright ellipse surrounded by a dark ribbon of dust. The jets of material, ejected at a right angle from the dust layer and running to the top left and bottom right, spread out into so-called lobes at a distance of thousands of light years and can be visualised using a physical trick: an image taken with a sub-millimetre telescope is superimposed, in reddish hues, onto the ordinary telescope photo. A third photo in the X-ray range, displayed here in blue, shows the impact of a shock wave at the bottom right. Only the combination of measured data from various areas of the electromagnetic spectrum allows astrophysicists to create a picture of the processes in the inner workings of this galaxy. And only this provides a starting point for *JA* member Julia Tjus's research (University of Bochum, Department for Physics and Astronomy). She is examining the question of how gamma rays are produced in galaxies like Centaurus A, which are many orders of magnitude richer in energy than the ones emitted in radioactive decay.

Thanks to the rapid progress in the natural sciences, we know of particles and biological structures, of global phenomena and celestial bodies that scientists could not even have dreamt of a century ago. Today, the worlds of the smallest and largest things are accessible and explorable. They can even be made visible and thus sensuously experienced far beyond the limitations of optical instruments. Many an image has already found its way into our collective visual memory. Whether we conceive of individual cells in representations optimised for didactic purposes, or atoms and molecules as colourful polystyrene balls partially melting together, or magnetic resonance images of the brain with highlighted activity centres giving us the impression that we are witnessing someone think.

These externalised images also shape the mental images we create of the respective objects. Thus they shape our point of view, our understanding, our drive for knowledge. There is no point in denying that seeing is our most important means of access to the world. Its extension to distant and other things that are not visible in the classic sense, is a fact that we have grown used to at least since the growing avalanche of digital photos, films and infographics. At the same time, researchers are always continuing to develop their instruments for making the invisible visible.

However, a picture is not automatically a true likeness. It is not simply a neutral, even objective reflection of reality on a two-dimensional surface. In observing a painting, and maybe a photo too, we may be conscious that it expresses the author's subjective point of view, his potential bias. The same applies to images that are generated by the natural sciences: No matter how distinct the photo-realistic appearance – there is always a complex discovery process behind it. The images are not reflections of what things look like or even what they are like. Rather, they show the result of an image production method that focuses on certain aspects, selects specific parameters and may even be erroneous. The following images illustrating the work of *Junge Akademie* members and alumni therefore prompt us to question their appearance and to demonstrate the construction work that is inherent to such images.





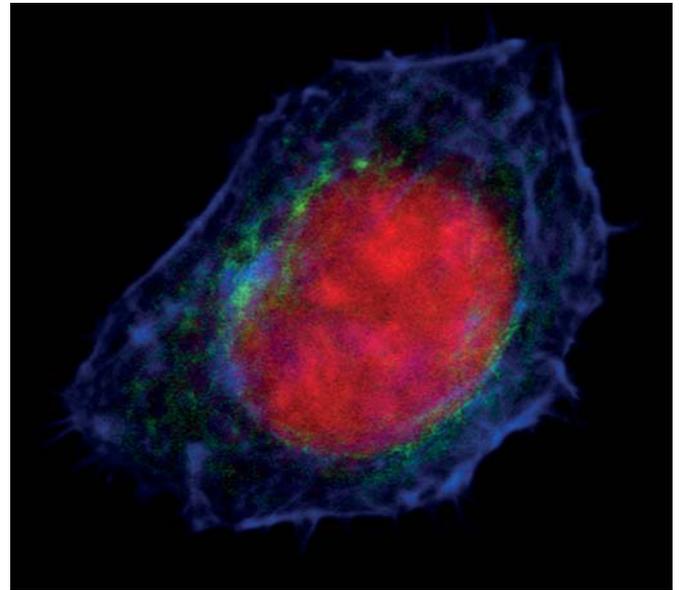
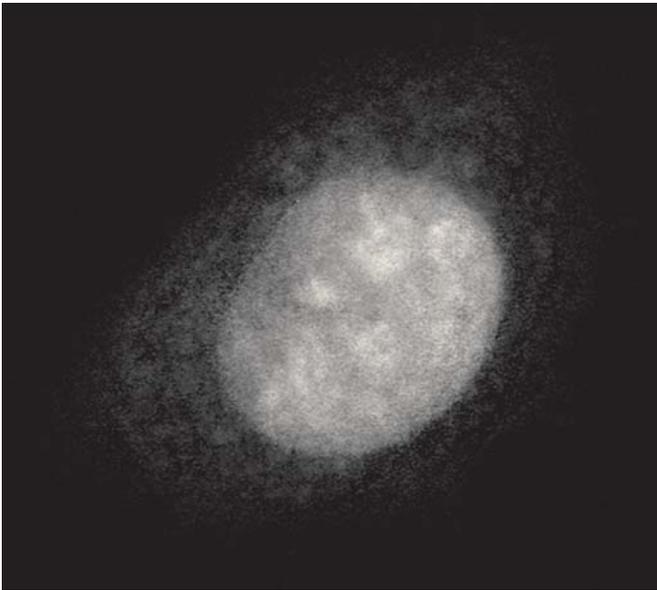
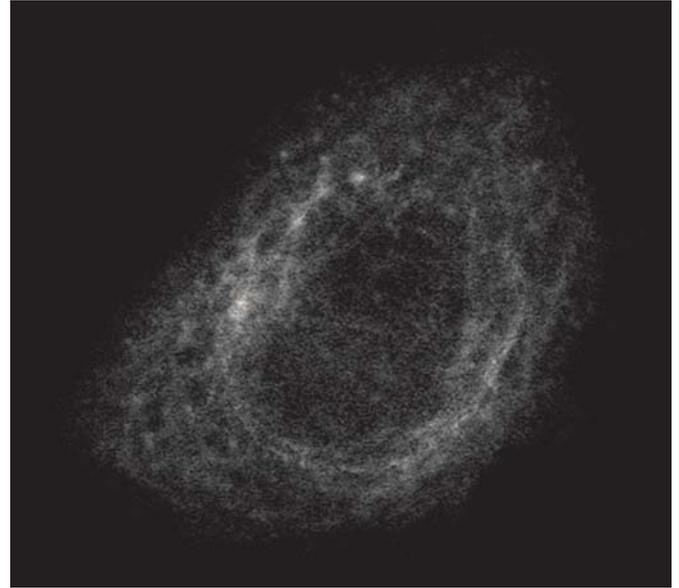
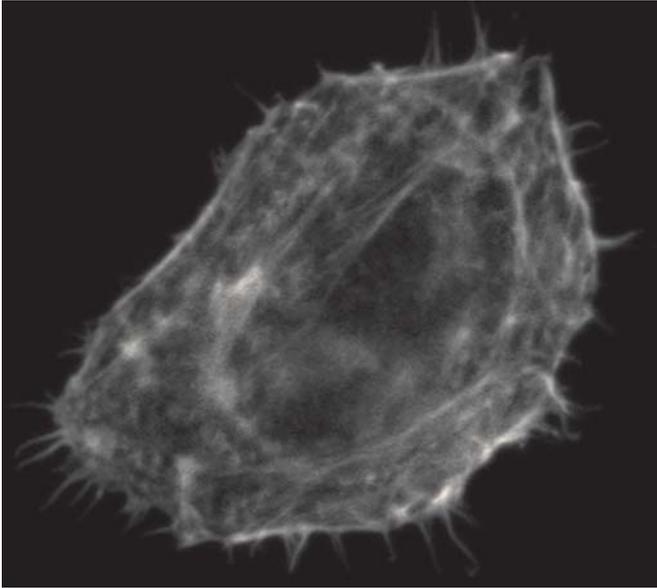
Picture: Ricarda Schubotz

INSIGHT INTO THINKING

Like no other discipline, the neurosciences are changing the self-image of mankind. A large contribution to this is made by images conveying the impression that the brain is being directly observed in the processes of thinking, feeling or deciding. In this picture from a study by *JA* alumna Ricarda Schubotz (University of Münster, Institute for Psychology), we see the weighing of options for action with regard to an object and tool, e.g. apple and

knife. The more options there are – in the example, there is cutting, peeling or skewering – the more active the highlighted cortex areas become. The view into the head is not nearly as direct as it appears. The process employed here, functional magnetic resonance imaging, does not measure neuron signals, but rather the distortion of a magnetic field which is influenced by the oxygen content of the blood, and thus indirectly the metabolic activity –

in cube-shaped partial volumes with three millimetre-long edges that remain consciously visible in the illustration. The measurement is repeated countless times on one to two dozen test persons in order to record the statistically relevant connections between metabolism and task. Special software analyses the body of data statistically and finally produces an image.



Pictures: from Neber *et al.*, *Biophys J* 96 (2009), pp. 3795, with approval from the Biophysical Society

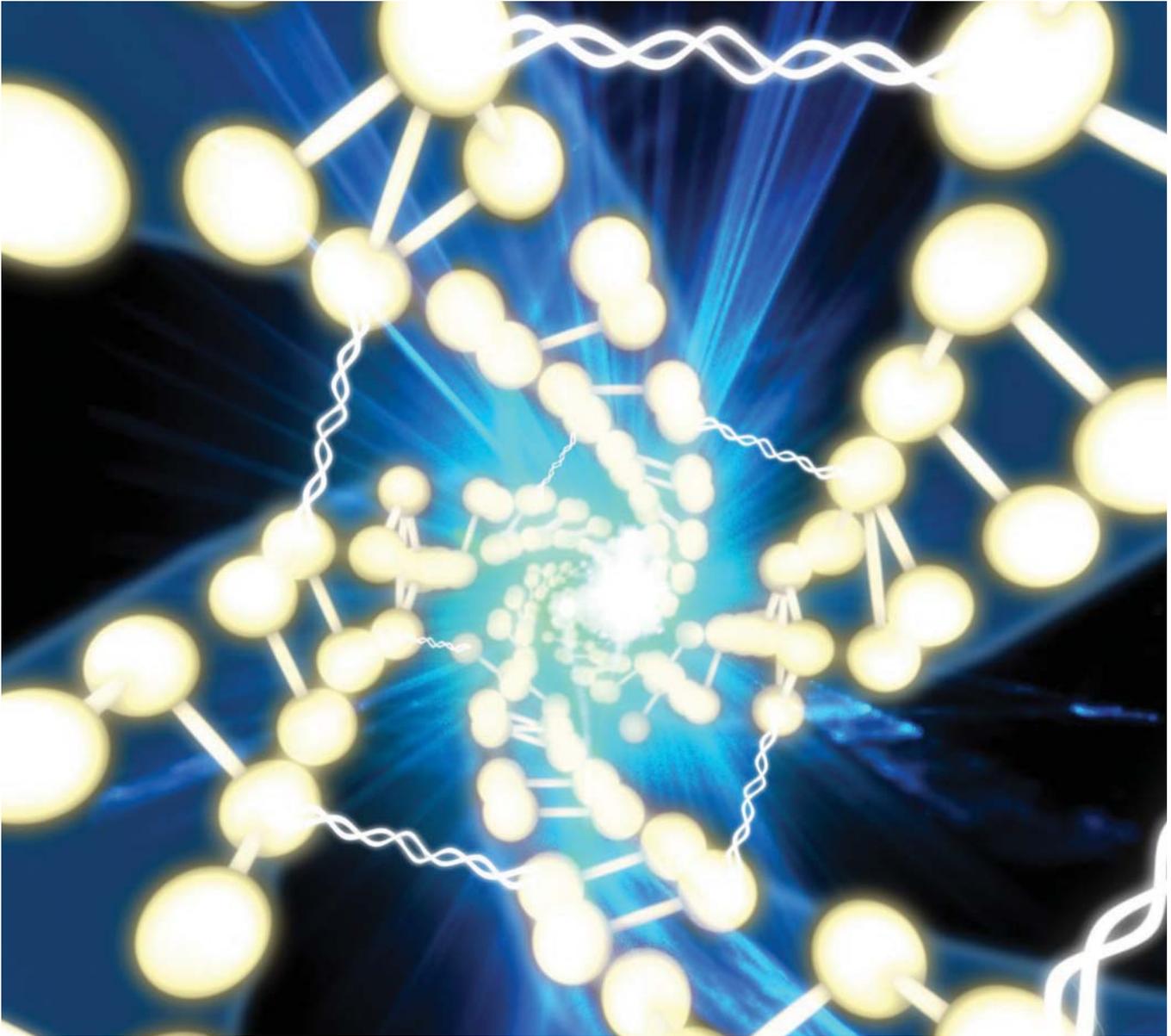
BRIGHT COLOURFUL CELLS

Red, green, blue: these friendly colours label different cellular structures in a HeLa cell, coming from a cell line that traces back to cervical cancer. A normal light microscope could never produce such a precise image. Instead, a fluorescent laser scanning microscope is employed: the cell coloured with fluorescent dye is scanned point by point with a laser beam. Some pixels emit fluorescent radiation; photo detectors register this, and the computer

composes an image out of the chronological sequence of the measured data. It is difficult, however, to make different structures visible simultaneously in the cell. You can colour them with different dyes, but the fluorescent spectra often overlap so that the source of the detected radiation remains unclear. As *JA* member Fabian Theis (Helmholtz Centre and Technical University of Munich) and colleagues showed in a project, certain mathematical methods

can be of help in this unmixing process.

Under certain circumstances, they can make it possible to assign the measured intensities to the dyes unambiguously. So here we have three monochrome partial images produced by one single measurement process – which in total merge into a pseudo colour image.



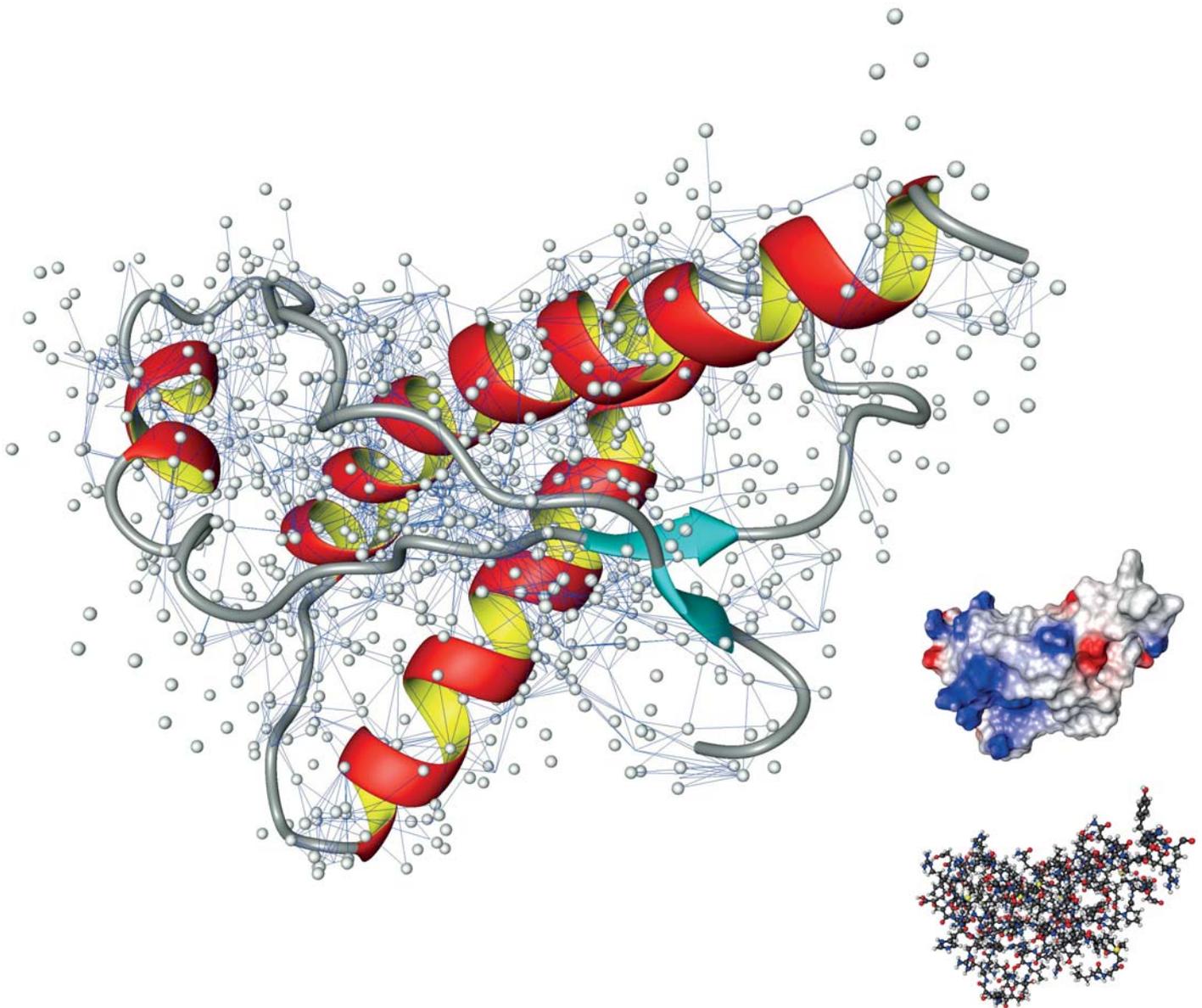
Picture: Jon Heras

QUANTUM BITS AND ENTANGLEMENT

The fascination for quantum physics and its great application potential are great. But so are the paradoxes for our minds trained in the macroscopic world. Particles can only assume certain states – interim values are impossible –, but they can assume multiple ones at the same time: this is referred to as superpositioning. Furthermore, two particles can also be prepared in a joint “entangled” state. In this instance, certain interactions,

which the one particle experiences, directly impact the other, no matter how far this one has moved away in the meantime. These properties make new, tremendously fast and safe computers possible. Or at least, that is the theory – and quantum physicists around the world are working step by step to make this a reality. In this way, absolutely secure cloud computing is viable in a laboratory experiment. JA alumnus Philip Walther (University of Vienna,

Institute for Quantum Optics and Quantum Information) has been able to prove that: a central quantum computer performs calculations with quantum bits without being able to retrieve initial data from them in the first place. Specially prepared photons, which the computer entangles according to an algorithm, are used as quantum bits. In order to visualise this at least rudimentarily, only artistic fantasy and illustration can help.



Pictures: *Christiane Ritter, software used: MOLMOL*

POTENTIAL EVILDOERS IN THE BRAIN

Three images – the same object three times: the picture shows the human prion protein hPrP, a protein molecule whose normal, presumably protective functions in the nervous system are not yet completely understood. It is clear, however, that hPrP can turn into a threat. If the long protein chain folds differently than it is depicted here, the molecules tend to create deposits in the brain that are difficult to dissolve. These deposits are tightly associated

with the deadly Creutzfeldt Jakob disease. *JA* member Christiane Ritter (Helmholtz Centre for Infection Research, Braunschweig) is interested in hPrP for another reason: its disease-causing form resembles substances that are produced by pathogenic bacteria. A better understanding of such macromolecules could open therapeutic approaches to many illnesses. A representation of the image can only be achieved through complex construction

work: magnetic resonance spectroscopy delivers data, depicted as blue lines in the large picture, on the spatial proximity between pairs of hydrogen atoms. Computer programmes calculate everything else from this, e.g. the position of the hydrogen and other atoms (below); the presence of typical structural elements, visualised here as spirals and arrows, as well as the surface structure together with the charge distribution.

THE POWER OF PICTORIAL TRADITIONS

Even ostensibly unambiguous photos can lead you astray

BY VERONIKA LIPPHARDT

Historical photos sometimes trigger stereotypical feelings and chains of associations, primarily if they involve photos from the Nazi period. Such emotionally charged associations do not always do justice to the illustrated matter. The *Süddeutsche Zeitung* provided a good example for this on 24 March 2011. On page nine, it illustrated a report on a study by the German Medical Association on the medical profession in the Nazi period with a photo that shows how two adults in doctor's coats measure and record the size of a child's head with a measuring device. Caption: 'Many physicians shared the racial fanaticism of the National Socialists. They not only accepted the crimes of the regime in silence, but also participated, as shown here, in the "racial hygienic" examination of a Jewish child in 1936. Photo: Pisarek Photo Archive'.

Now there are numerous photos that show the crimes of German physicians in the Nazi period much more drastically. The newspaper's editorial staff may have chosen this one because it does not involve cruelty, but seems to produce the connection between ideology and crime. The chain of associations says: The Jewish child is being measured by National Socialist doctors with regard to racial hygiene concerns, in order to be classified as inferior and, later, murdered. The

pictorial logic works this way in hundreds of German school books, in exhibitions, documentary films and in a number of other publications. Someone who has never questioned this pictorial logic will see evil aggressors in both adults, who are complicit in the presumed murder of the child.

However, the picture itself does not actually say anything about the context of its origins. People who are well versed in history, who know the diverse history of eugenics and physical anthropology, will realize that this photo could have been taken anywhere in the world. They will also not automatically classify the depicted adults as criminals. At most, they will be surprised when they learn that it is German Jews who are shown measuring the child's head: The photo shows a snapshot from a research project by the Jewish doctor and anthropologist Wilhelm Nussbaum, the two adults are his assistants. Nussbaum ran the 'Working Society for Jewish Hereditary Research and Hereditary Care' (*Arbeitsgemeinschaft für Jüdische Erbforschung und Erbpflege*), which examined some 1,200 Jews in Germany between 1933 and 1935. The magazine of the physicians' association 'Goal and Path' (*Ziel und Weg*) also printed this photo, along with other photos, in a 1934 report on Nussbaum's research.

Nussbaum's explicit goal was to give the harassed German Jews courage and confidence. He wanted to prove that the European Jews had an anthropologic history in Europe, that they were not a 'foreign race', as his non-Jewish colleagues maintained. He was also aware that his material could be misused by the National Socialists; with his emigration in 1935, he succeeded in having all his work transferred to the USA. Without a doubt, the examinations for his test persons were neither painful nor dangerous.

Since the origin of the photos is difficult to research, one can hardly criticise the *Süddeutsche Zeitung* or the Pisarek Photo Archive. An archivist at the Leo Baeck Institute in New York discovered in 2006 that the Holocaust Museum in Washington and other educational institutions had also used pictures of Nussbaum's work erroneously for illustrations of Nazi crimes. This is partially due to the photos' heritage: the photos from the Pisarek archive originate from German-Jewish photographers Abraham Pisarek and his colleagues. They show German-Jewish life in Berlin in the 1930s. Unfortunately, the photos were indexed inaccurately and given a wrong date.

So we should adopt a critical attitude regarding the collective pictorial traditions

of the German politics of history. Nussbaum did not commit or support any crimes. The emotional reflex of the image printed in false context is by no means suited for his desperate, sometimes naive effort which overestimated his own opportunities for action. He defended moderate eugenic ideas, as many scientists and physicians around the world did at that time, given the state of the debate. But he did not support the radical ideas that brought other scientists close to the Nazi regime. He would never have approved forced sterilisation, euthanasia or mass murder.

For this reason, it is time to problematise the collective emotionality of the visualisation of Nazi history. This includes a more differentiated approach to the connection between anthropometry and eugenics. Anthropometric measurements did not and do not always have to serve racist purposes. For instance, they were also applied in order to prove that the physical growth of children depends not on race, but rather on nutrition and other environmental factors. Today, bodies are measured with high-tech devices in order to determine clothing sizes or design ergonomic seats. Nonetheless, we cannot describe anthropometry as an 'innocent' method that has only been 'misused': today, we quite rightly have a critical view



1934: A Jewish child is measured. An assumption of anti-Semitic motives, however, is completely incorrect

of anthropometry's converting people into measurable and quantifiable objects.

And furthermore, in the early 20th century (not only in Germany), researchers that pursued anthropometric examinations for racist, race-hygienic or eugenic purposes did exist. After 1933, some wrote racial biologist surveys on an anthropometric basis and thus willingly provided the Nazi regime with the basis of decision-making for forced sterilisation and murder.

Presumably, such scientists were also photographed during the taking of their measurements, and certainly these photos will have looked similar to the one we have discussed here.

But Nussbaum knew and guessed none of this at the time of taking the photo in 1934. Anthropometry was part of his scientific education, applied in good conscience, in order to produce supposedly objective knowledge.

WAYS OUT OF THE STEREOTYPE DILEMMA

When it comes to migration and minorities, the ambivalent potential of pictures becomes especially apparent. A talk about opportunities, risks and interdisciplinary approaches

INTERVIEW ULRICH PONTES

JAM: Sociologists and literary scholars are not per se experts on visual representations. You, however, are engaging in the subject of visuality with regard to migration and minorities. Why?

Sabine Koller: Minorities, whether they are of the ethnic, religious, sexual or another kind, and the migration of minorities are often a social taboo. For this reason, visualisations such as photos, diagrams, charts or cards are important instruments in supporting the voices of bold journalists, scientists or human rights activists who draw attention to the displacement or persecution of minorities. They use specific images to counter diffuse ideas about minorities that are defined by stereotypes and prejudices. They put a face on marginal groups that would otherwise disappear in the anonymity of the repressed.

JAM: But is that really an authentic face? In the press, photo themes are often very stereotypical: A woman with a headscarf represents migration; pictures of Christopher Street Day stand for lesbian-gay issues ...

Magdalena Nowicka: Pictures are based on a collective semantic structure which is shared by people in a certain culture. The visualisation of migration only has an effect when the picture can be interpreted directly – without a long caption. Each image on the subject of migration in a newspaper, magazine or on television is therefore based on our daily and often stereotypical knowledge about the functioning of a society and the role that migrants are to assume in it. From our western-European point of view: migrants are immigrants in search of work and better living conditions. Especially in Germany, images

of black-haired men with moustaches in working clothes and a factory have an effect. So do women with a headscarf, Asian-looking people or black people – these are precisely the images we see when we google for pictures of migrants on German-language websites.

JAM: That sounds as if academics who think in a precise and complex way should stay well clear of visualisations of this sort.

Magdalena Nowicka: Every researcher who does not want to forego the force of visualisations is in a tenuous space between what he or she knows and what others see in a picture, because the public shares the pictures, but it does not share the knowledge of the researcher. There is a danger that the visualisation ultimately does not convey the knowledge of the researcher, but rather confirms the prejudices of the public. Migration scholars are aware of this danger – most of them anyway. The problem of the power pictures have will have to be faced at the latest when the publisher asks which picture should appear on the book cover.

Sabine Koller: Pictures – and by this I mean documentary pictures – run the risk of overlooking the author's subject and the presumed neutrality of the statement. Thanks to the 'iconic turn', we are more and more aware. Nonetheless, the critical apparatus that you command as a sociologist fascinates me. Pictures influence knowledge; knowledge is power; our view is defined by our Eurocentric perspective – what we are dealing with is only really brought to my attention through your point of view. An academic approach, of course, means to question and



THE SOCIOLOGIST

Magdalena Nowicka, born in 1976, works as a post-doctoral researcher at the Max Planck Institute for the Study of Religious and Ethnic Diversity in Göttingen and at the Ludwig-Maximilian University of Munich. A focal point of her work is migration – a subject she knows from a personal perspective.

research preconceived images in our heads. And naturally we may never forget that behind the images – similar to terms such as ‘migrant’ – are many individuals. Persons whose dignity and integrity must be preserved!

Magdalena Nowicka: Which can be difficult. Let us take a photo of an overloaded boat that arrives on the Italian coast. Everyone in Europe can read that, but it places the refugees in a negative light, presents them as attackers. If we choose to present the immigrants as victims, we tend to deny them the ability to act. If we try to balance out the negative and positive representations, which is what aid organisations often do, we threaten to downplay the situation and also encourage the tendency to differentiate between good (nice, talented) and bad immigrants. And despite everything, the focus is on the special and the dramatic – in reality, however, migration is a daily, complex and usually unspectacular event! Unfortunately, the ethnic minefield that involves pictures has not yet been sufficiently addressed by migration research. But what I would be interested in now is the caption, which is always of vital importance too, of course. What is your view of this as a philologist?



THE PHILOLOGIST

Sabine Koller, born in 1971, is a private lecturer at the Institute for Slavic Studies at the University of Regensburg. Her interests are Russian and Yiddish literature and culture in the 19th and 20th century, intermediality and cultural translation processes. Her favourite topic is a minority oppressed in the Tsarist Empire: eastern Jews.

Sabine Koller: Visual and textual representations have to fundamentally complement each other. From my point of view, this complementing is required, certainly in academic work on minorities and migration, in order to do justice to the complexity of the subject. Naturally, pictures and texts function very differently. They prompt the creation and the directing of different meanings for which you must be sensitised. Furthermore, however, I would like to address the perspective: as a rule, photos of migration and minorities are generated from the external perspective e.g. of a journalist or academic. They do not need any additional information from an internal perspective. Of course, it is often a humiliating experience to belong to a minority. Or let us take the psychological consequences of involuntary migration. I would view the testimony of affected persons, i.e. oral history, as an important addition to more recent stories. For earlier times, autobiographies and literary texts can assume this role. Also, subjective forms of visualisation such as pictures, drawings or photos, in short, artistic treatment of affected persons and their situations can convey this internal perspective. Pictures of Eastern European Jews fleeing Russia at the beginning of the 20th century, such as those created by



Oppressive experience of a minority, reflected artistically: paintings by the Polish Jew Maurycy Minkowski (1881–1930)

Leonid Pasternak, Maurycy Minkowski, Samuel Hirszenberg or Marc Chagall, are an impressive example of this. Otherwise, they mainly contributed to the identity formation of oppressed eastern Jews.

Magdalena Nowicka: This internal perspective is also increasingly important for today's social sciences. Drawings, photos, videos produced by migrants themselves complement the narratives we analyse in our research. They are used by scholars as sources of equal value, offering us new access to the affected persons' spaces of experience.

JAM: Now, of course, there is another form of visualisation, namely graphics and diagrams. That is, information instead of emotion. Doesn't this help the aspirations of academic objectivity?

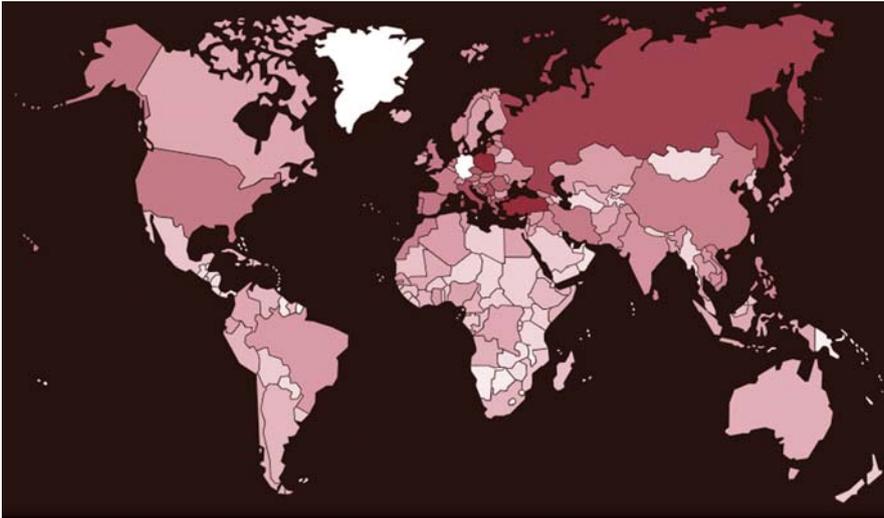
Magdalena Nowicka: Correct, this is certainly true for quantitatively working migration researchers. For them, the complexity-reducing effect of graphics and diagrams is advantageous: graphics are very effective. They allow you to quickly convey complex connections and large quantities of information. For instance, the US Department of Homeland Security collects data on the people who cross the borders of the US in

a table, which takes up four pages despite tiny, only 7 point font lettering. You completely lose the bigger picture. A diagram, on the other hand, can convey a view of where these people come from, whether there were more men or women and whether the number of border crossers increased in recent years.

Sabine Koller: The visually schematised diagram of when and how minorities migrate shows processes simultaneously, although in reality they usually happen successively. The visualisation becomes a condensed history – and it can be a very good barometer of how hot or cold, in Claude Lévi-Strauss's terms, cultural spaces are, meaning how much they do or do not change due to migration and minorities. But visualisations on migration naturally convey much more: where diasporas arise; when there was a migration climax in history; how far migration movements can extend. And: visualisations are a good means to make plurality clear and to expose preserved myths about a single country, language or nation. Against a colourful patchwork rug of ethnic membership, it is difficult to make a claim to 'one single people'.

JAM: Are such information-driven visualisations consistently helpful and unproblematic?

Sabine Koller: They definitely have a very high heuristic value



Complex information, compactly presented: origin of immigrants in Germany



Stereotypes: photo on the subject of migration

MAP: MPI-MMG (VISUALISATOR: [HTTP://MEDIA.MMG.MPG.DE/](http://media.mmg.mpg.de/)), PHOTO: EPD-BILD/ROLF ZÖLLNER

and constitute an important bridge to the public when it comes to conveying (in)voluntary migration movements. They can counter manipulation at any, assuming that they are based on empirical hard facts. Naturally, the lived experience, the emotional side should not be forgotten.

Magdalena Nowicka: In critical cartography, for example, one is thoroughly aware of the fact that each map not only represents knowledge, but also produces it. Power can be exercised by selecting information. An example would be to combine geographical mobility with issues of racism, economic power or social inequality, thus systematically including into or excluding from our attention certain social problems. By the way: on a small scale, academics pursue this type of policy and control on a daily basis, namely when applying for grants. A corresponding visualisation can quickly convince the potential sponsor of the degree and urgency of the problem to be examined. Visualisations therefore often determine which migrants will be examined where and from which angle – and which migration researchers will get ahead.

JAM: So, attempting a summary: visual presentations are a powerful means of communication and as such, precisely for the political subjects of migration and minorities, almost predestined

to be exploited by all sides for their own ends. We should not let ourselves be blinded by the apparent objectivity that comes with a diagram or a documentary photo.

Magdalena Nowicka: I would gladly encourage keeping an eye on new technological developments. Multimedia tools now offer innovative methods for data collection and processing. And through dynamic and interactive forms of representation linking texts, images, graphic presentations and videos, data can then be made accessible in a new way. This offers increasingly good opportunities for breaking stereotypes about migration.

Sabine Koller: Furthermore, it becomes apparent here how important complementary work is on several levels: on the one hand, pictures should never be considered and evaluated alone, but always in combination with other media. And on the other hand, the interdisciplinary perspective is important and enriching. Both intermedial and interdisciplinary approaches help us break our conventional, truth-oriented habits in the treatment of minorities – in order to look behind the pictures and include the power-dependent picture and knowledge production processes in our perspective.





GOOD PICTURES, BAD PICTURES?

Impressions from a Medievalist's Perspective

BY KLAUS OSCEMA

A dark age, witch trials, the inquisition – long before the ‘iconic turn’ brought pictures to the fore in the context of cultural studies, scholars of medieval history had to deal with vivid images that occupied the broader public’s mind. Needless to say, these pictures tell us less about the Middle Ages than about modern ideas and cravings: they are projections, helping us to construct our perception of the modern period and society we live in and which distinguishes itself so conveniently and reassuringly from the proverbial “Dark Ages”.

What many people came to call the ‘iconic turn’, however, is less focused on these kinds of mental representations, even if they are highly significant to our perception of ourselves and others. The innovative nature of the ‘iconic turn’ resides in its renewed approach to material artefacts, which the traditionally text-oriented study of history is usually said to have ignored. Like many prejudices, this is partially true; at the same time, it does not do justice to the entire field of medieval studies. Besides the negative images in our mind, which current publications tend to contrast with the “illuminated Middle Ages” (e.g. by the means of lavishly illustrated books), very concrete pictures have occupied an important part of medievalists’ research for quite some time: two examples would be Percy Ernst Schramm’s research on rulers’ insignia (*Herrschaftszeichen*) in the Middle Ages (and beyond) as well as Johan Huizinga’s famous “Autumn of the Middle Ages”. Truth be told, such works remain somewhat exceptional and owe their status as ‘classics’ to their pushing the boundaries of established ‘mainstream’ research. Has the situation changed since the days of Schramm and Huizinga – and if so, how? In order to understand the cultures of the European Middle Ages, scholars nowadays eagerly broaden their perspective to include any kind of material that seems promising for the enlargement of our knowledge. As a more or less practical consequence, current books about ‘the’ Middle Ages may not necessarily be more colourful, but they definitively contain more illustrations. On a more methodological level, particularly French

historians have led the way by establishing images as material for approaches in “anthropological history” or *anthropologie historique* since the 1980s. Their initiatives have been followed by fruitful debates examining possible new perspectives the analysis of ‘images’ (in all their diversity) could provide: from aspects of medial self-reflexivity to the expression of cultural specifics.

Among other things, these approaches were made possible by the technical progress that facilitated the researchers’ access to images in medieval manuscripts and their reproduction. As a result, the ‘iconic turn’ since the 1990s is not solely the product of disciplinary debates that took place in the closed circles of specialised researchers; it is equally connected to developments that characterise these researchers’ social and cultural environment. Easy access to historical objects in digital form not only opens up new perspectives on academia: the broader public also benefits, since it is no longer confronted with publications that resemble dry wastelands of text, but can sometimes enjoy the pleasure of contemplating magnificent illustrations in richly illustrated works. As always, however, there is a flipside to the coin. On the one hand, the ‘iconic turn’ can lead researchers to believe erroneously that the analysis of images is an easy task which can be accomplished without further theoretical and methodological reflection: after all, everybody can see what the picture shows ...

As a result, the specific characteristics of the production of images in foreign cultures are easily ignored, for instance when medieval miniatures are interpreted like modern photographs, i.e. as simple depictions of real situations and conduct. In fact, even photographs have their pitfalls, as can be illustrated by the discussions provoked by the widely known exhibition on the German army (*Wehrmachtsausstellung*) in the 1990s. In these debates the exhibition’s conclusions were questioned on the basis that some of the photographs had been ‘misread’ – persons had been wrongly identified, as well as the places and times where and when the pictures had been taken. What is even more, photographs do not





THE BAPTISM OF CLOVIS BY THE SAINT REMY IN REIMS (allegedly 496): A dove brings holy oil from heaven. "Grandes Chroniques de France", manuscript ca. 1375/80. Paris, BnF, ms. fr. 2813, fol. 12v.

simply 'capture' reality, but have their own dramaturgy, sometimes to the extent of being 'staged'.

The medieval scholars' task can, however, be even more difficult: late-medieval images – miniatures and panel paintings alike – might look like realistic portraits. But this appearance often is deceiving: Critical analysis can show that the concept of 'photo-realistic' reproduction simply does not apply, and that seemingly 'realistic' pictures can contain symbolical elements and idealistic details. Some Art Historians cautiously speak of 'veristic' objects that neither can nor want to make a claim to realism. Thus, problems can arise easily when historians try to jump on a moving train, without being adequately prepared on a theoretical and methodological level.

Further difficulties arise from the 'publishing market': since the reading audience demands pictures, authors and publishers try to react accordingly by illustrating their products. Alas, for many subjects in the Early and High Middle Ages, contemporary images simply do not exist. Even if they do, as should be clear by now, they constitute no real-life snapshot of a given moment, but rather an artistically condensed representation. The search for attractive depictions of important events or persons from the Middle Ages thus turns out to be difficult. In many cases, useable

images can only be found in objects that were produced many centuries after the events. Due to a lack of alternatives, scholarly and less-scholarly works on a given topic are then illustrated with anachronistic images: a contribution on the crusades, which focuses on the 11th to 13th centuries, may thus be illustrated with miniatures from the 15th century. And although they might be both colourful and appealing, they cannot contribute anything to the subject at hand.

A telling example are the Frankish Merovingians, who were, according to the title of a 1990s exhibition, no less than the 'pioneers of Europe': even today, many consider the baptism of King Clovis to be the 'birth of Christian Europe'; the 6th century historiographer Gregory of Tours stylized it as a symbolic moment. In fact, however, we do not even know exactly when this event would have taken place (which did not prevent French politicians and scholars from celebrating the symbolically charged 1,500th anniversary in 1996, thereby confirming Clovis' role as a founding father of France). Contemporary pictures of this moment simply do not exist, the earliest known representations date from after the turn of the millenium. Versions considered to be 'attractive' for a broader modern public have only been produced in the Late Middle Ages – the baptism of Clovis is thus most often illustrated with a miniature from the 14th century French *Grandes Chroniques*. But what can this – by the way: splendid – image tell us about Clovis and his time? To be honest: nothing. The French historian Jacques Le Goff once emphasised that Joan of Arc was closer to us today than she was to Charlemagne. Quite similarly, the baptism of Clovis and its iconographic representations may both date from the 'Middle Ages' from a modern point of view, but they are separated from each other by no less than eight centuries. Picasso's 'Guernica' was produced only a few months after the brutal destruction of the Basque city by the 'Legion Condor' – but who would sincerely want to interpret it as a testimony for the events, rather than for their impact?

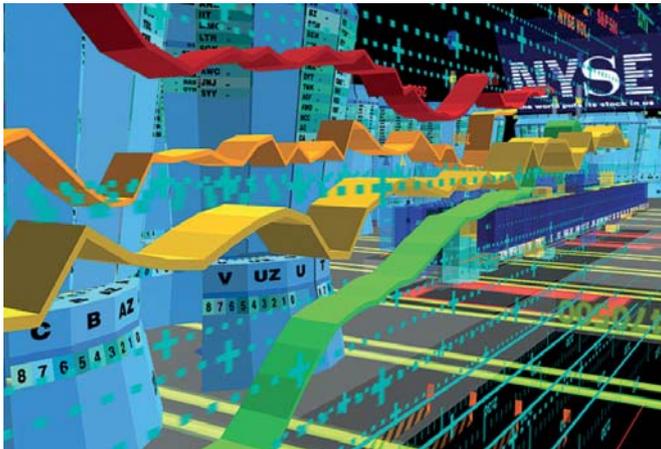
I would thus conclude that images can lead us to erroneous conclusions in many ways and produce false ideas. If we use them consciously, they become an immensely fertile basis of historical analysis – purely illustrative use can, however, have serious consequences, when it leads to the construction of false ideas about history. In the case of the Middle Ages these consequences may often seem to be relatively harmless, compared to the popular and very effective pictures that the *Bonner Haus der Geschichte* showed in the exhibition 'X for U – Pictures that Lie'. The fundamental mechanisms, however, are the same – and we should not get used to them.

CONTEMPORARY CULTURE THREATENED BY LOSS

Media art plays a key role in the reflection of our time. But with current funding and grant policies, there is a threat of losing this cultural asset and its related research archives

BY OLIVER GRAU

An interactive map, which can be navigated by touchscreen – that sounds like Google Street View, but it is actually media artwork from the 1970s. Long before the internet was used and Google was founded, Michael Naimark, who was then studying at the Massachusetts Institute of Technology (MIT), filmed the streets of Aspen, Colorado with a camera attached to a car, and processed the picture material into the first interactive map in history



Financial market process visualisation: bankers rejected further development

For more than 50 years, media art has combined the latest technologies with the big questions of our time: artists critically addressed the visions of life sciences and projections on artistic life, utopias of neuroscience, robotics and cyborgs; media art reflects and researches the media and image revolution and takes

up the subject of the processes in globalization. In the 1990s, the artistic group 'Asymptote' created visual representations of the processes at the New York Stock Exchange (NYSE). Complex financial products stood on the threshold of visualisation – but maybe the transparency that would have made the toxic assets understandable for laymen was not in the bankers' best interest. They rejected its further development anyway. We know how the story ended ... Through its visually expressive potential, which is technically superior to traditional art media of earlier centuries – e.g. painting and sculpture – media art attains a key role in the reflection of our information societies.

Inaction is the same as iconoclastic riot

If the global amount of annually produced new analogue information fell slightly in the last 20 years, the amount of digital information exploded from 1993 to 2007 by a factor of 2,500 (see chart on page 19). Since then, its growth has accelerated even more, so that newly produced digital information should have exceeded the mark of one billion gigabytes (and therefore new information in analogue form) by a factor of 50. Some institutions in our society continue to act as if the proportion is the reverse, as if the revolutionary development of our information society and its culture had not taken place. Consequently and to this date, digital data has hardly been recorded or archived for the long term in a systematic way.

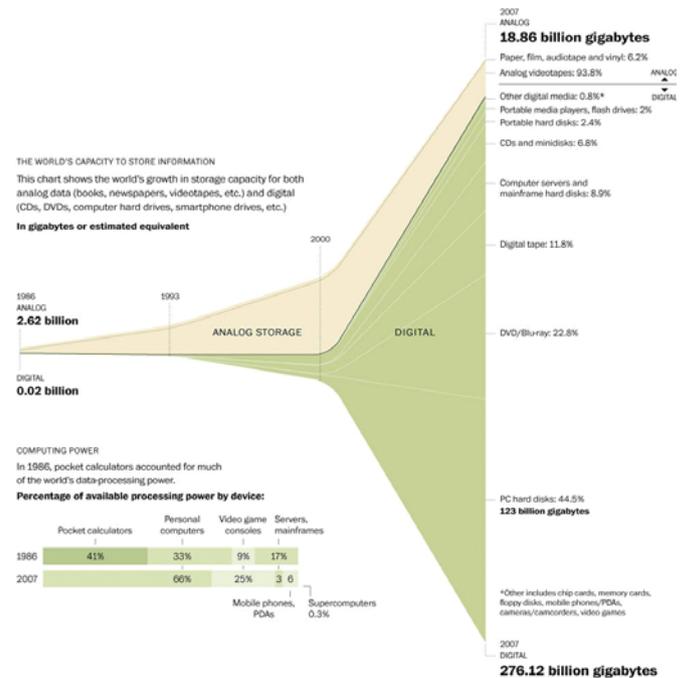
The consequences are particularly drastic in the cultural sector: multiple decades of contemporary culture are threatened by total loss. Publicly financed archives, museums and educational institutions may be obligated to collect and pass on the art of

our time, but the archive systems in our society were caught off guard by the shorter lifespan of digital storage media. Methods for long-term storage, such as emulation and recreation, remain their infancy and a concentrated networked collection policy that our federal museum system implemented for classical modernity or post-war art is not even being discussed for electronic art. Furthermore, the funds are lacking: although the need for action is clearly more urgent, the funds for preserving electronic art forms still constitute only a fraction of what is available for monument maintenance. It is not even sufficient for preserving three to six percent of the artwork that usually would have survived from the art of earlier centuries, i.e. not even the most important works of globally exhibited artists. If we don't do anything now, we will lose the entire art and culture of contemporary society – a tabula rasa that is comparable to the iconoclastic riots and war losses in the past.

Image science as a key to contemporary analysis

The significant cultural movements of the last decades were recognised and discussed early on by humanities scholars – see, for instance, artificial life and AI, cybernetics, the picture and media revolution and its historisation, the so-called end of utopias or free will. In light of the image revolution, according to the German Research Minister Annette Schavan in July at the international art history congress CIHA, 'today it is important to understand and analyse new virtual worlds that have become a part of the lives of many people'. The humanities, particularly the art and image sciences with their expertise in historical and comparative analysis have set themselves this core task. In order to fulfil their social responsibility, they must be placed in a technically and research politically viable position to do so.

Picture and video documentation that also record the hardware and software configurations, as well as countless interface innovations and display creations by artists, play a central role in the research of digital culture. In the 1990s, thanks to short-term project funding, Germany attained a leading international position in this area and in the development of image and video platforms necessary for this. Due to a lack of sustainability and the largely lacking development of international funding structures in the humanities to this date, this position has now been gambled away. If things do not change, the academic online research on the digital culture of our time will be lost.



Critical institutions are lagging behind: a comparison of the change in analogue and digital information amounts

DATABASES AS RESEARCH INSTRUMENTS

The most important instrument of media art research consists of image and video databases. They document the artworks and store the technical details on the hardware and software. Such databases are also very important for museums in order to maintain an overview of their inventory. The first international database for digital art (www.virtualart.at) was initiated in 1999. In order to work out categorical differences on historical, analogue art forms in a differentiated way, it is now being connected with the databases of historical artworks. For the first time, all picture formats shall be combined in an interactive instrument for the analysis of pictures and made comparable – from the print graphics to photo and video to the movable 3D object.

And yet the study of art and image through thorough image analyses and their methods of comparison could strengthen our political-aesthetic analysis of the present. Last but not least, the emergence of new media could also be illuminated, which is frequently first developed in artworks. For this reason, much begins, as in some natural sciences, with sequences and comparison. The possibility of studying pictorial developments over longer periods of time is a prerequisite for pursuing image science, which requires not only the object definition, but also the description, which necessitates the use of large image archives.

Images for the future: what needs to be done now

Inspired by Darwin's 'The Expression of the Emotions', Aby Warburg began his famous 'Mnemosyne Atlas', the picture cluster composed independently from the established art canon of its time (!) and including a number of different media. Art and pictorial history developed into an overarching media search for bridges of comparison wherein Warburg recognised his academic responsibility under the influence of the First World War. After museums, too, have been collecting photography since the beginning of the last century, and a large film collection emerged in the 30s in the New York Museum of Modern Art, today we should actually be witnessing the emergence of virtual museums. This key development for the digital humanities has still not occurred yet.

In recent decades in the life and natural sciences, previously unachievable questions could be researched through networking and visualisation: the virtual observatory of astronomers provides access to the cosmos via a worldwide network of dozens of planetariums. All the connected observatories can access the same pictorial material, the creation of which the involved countries have jointly financed. In climate research, the Millennium Ecosystem Assessment calculates the warming of the earth and ecological changes on a global scale, and the success of the human genome project is legendary – we were actually surprised

at how quickly the collective work structures had an impact on the decoding of the genome.

In the humanities, previously unexecutable projects could be made feasible through digital media and networked research. These include the documentation and preservation of media art or – maybe slightly utopian – a collective history of visual media and their human perception on the basis of thousands of image sources, videos and 3D simulations. In light of the image revolution and its increasingly quick development of suggestive effects such as 3D, animation and virtuality, this is a key question of our time. In order to facilitate sustainable progress for the humanities, it is necessary to use the new technologies comprehensively. The motto is: don't give up the tradition of individual research, but support it through collective, network-based forms of work. Only in this way can critical analysis be placed and strengthened on a contemporary, broad basis.

If we take a step back and observe the past 15 years of media art research from a distance, one thing becomes clear: despite everything that has been achieved – we need a concentration of forces. In the field of documentation, it is essential to bring the most important concluded and ongoing projects under the umbrella of an international institution such as the German National Library (*Deutsche Nationalbibliothek*) or the Library of Congress, which could ensure the long-term existence of the artefacts. The Europeana – the large, but underfinanced idea of a European network of digital collection documentation – also remains useless if its basis of individual archives is not continued. Besides securing collections, the establishment of a high-performing elite research organisation with the top minds in the field would also be sensible.

In Germany, large interdisciplinary issues that prove to be too expensive and complex for one university – and nothing else meets this criterion like the research of digital cultures from

the computer game to avant-garde art – require the format of a Max Planck Institute. With its new international orientation, it would be well-suited for making an exemplary international contribution. Appropriate institutionalisation could contribute to making the head-start of German-speaking states fruitful in the future.



A novel research instrument? Jeffrey Shaw's 'T-Visionarium', an interactive 3D panorama projection

We need a proper and sustainable international collection and research funding policy, similar to the ones that facilitated the success of the natural sciences. A declaration recently initiated by the author for this purpose has since been signed by hundreds of high-ranking academics, artists and museum directors from 40 countries (www.mediaarthistory.org). In order to create enough momentum and the required sustainability, the promoters such as the National Science Foundation, Swiss National Science Foundation, German Research Society, Volkswagen Foundation and the EU must sustainably ensure international structures that were built partly through four global conferences on media art history. Only if we systematically develop collection, maintenance and research strategies in a concentrated way, we can handle the tasks that the humanities face in the age of digital culture.

For sustainable media art research

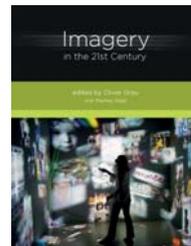
Maybe we will reach the point of having collective image-science work with instruments such as the globally exhibited artist and researcher Jeffrey Shaw has developed. In his 'T-Visionarium', pictures in all formats, videos and, in the future, 3D models can be arranged in a panorama. This installation – one is immediately reminded of the picture atlas by Warburg – could be developed into a novel research instrument for the discussion and visual analysis of up to 1,000 images.



ABOUT OLIVER GRAU

Oliver Grau is an art historian and media theoretician. Since 2005, he has occupied the first chair for Image Science in the German speaking countries at the Danube University Krems, Austria. He has run projects financed by the German Research Society (DFG), the Volkswagen Foundation, the German Ministry for Education and Research (BMBF) and the Australian Research Council. He developed new degree programmes and his works have been translated into twelve languages to date. He was a member of the *Junge Akademie* from 2001 to 2006.

CURRENT PUBLICATION



Oliver Grau (Ed.): *Imagery in the 21st Century*, Cambridge, MIT-Press 2011, 414 pages, 120 illustrations, EUR 29.99

The authors analyse the impact of the image revolution in the natural sciences and humanities for which we have catchwords such as virtual space, web 2.0, games, 3D, science pictures, Flickr, visualisation, machinima, bio-art, Facebook, collaborative video, cute media, new work and analysis instruments. With articles by Olaf Breidbach, Adrian David Cheek, Wendy Chun, Sean Cubitt, James Elkins, Oliver Grau, Eduardo Kac, Martin Kemp, Harald Kraemer, Lev Manovich, Christa Sommerer, David & Dolores Steinman, Martin Warnke, Peter Weibel and others.



Cameras increasingly act in an automated way – without a photographer who switches them off or pans them away

THE BLOCKBUSTERS OF EVERYDAY LIFE

Relief, compensation and disembodiment in the public picture space

TEXT + PHOTOS EVELYN RUNGE

According to Odo Marquard, a ‘solid dose of familiarity’ (*eiserne Ration an Vertrautem*) for children is the teddy bear, and for adults it consists of literary classics. For the modern man or woman, the teddy bear is their camera, a friend in familiar and unfamiliar worlds. The camera and the mobile phone are the umbilical cord of communication that connects us not only to others and potentially the entire world; they connect the person to him- or herself and simultaneously act as safety glasses. They are portable, affectionate and personalised with a preferred colour or protective cover. A transitional object, whether it is a teddy bear, Goethe or the camera, always creates an effect of trust: it creates a place in placelessness.

Illustration, documentation and publication: nothing should be forgotten. ‘The scarcest of all resources is our life time’, writes Marquard. Communication and media act as compensatory instances. They pluralise life and experiences, textually and visually. They counteract the impression that life is too short: ‘We even alleviate any shortage in life that resides in the fact that we only have one single life by pluralising it: by having fellow human beings and also slightly living their life through communication with them’. The ‘career of hearsay’ (Marquard) is replaced by the career of having seen.

Having seen, however, no longer requires any physical presence – and neither does being seen. Paul Virilio asks: ‘Do we still have the freedom to want to resist this (optical or electro-optical) flooding of the eyes by turning away our eyes or wearing dark glasses? ... Not because of shame or on account of any religious prohibition, but rather due to the worry of maintaining personal integrity, freedom of conscience’. Virilio calls for a right to blindness, a conscious loss of the senses, a loss of sight.

What would a loss of sight look like? Virilio explores two angles in his quote: ‘averting the gaze or wearing dark glasses’ can mean averting one’s self – or forcing the technique of turning your very own gaze from us. In the public sphere, the usual steps in the photographic production process are dissolved and disembodied. Nobody can avoid the surveillance cameras. No photographer is there any longer. It is only the lens. Even if you were to make a gesture in the direction of the camera, as we are accustomed to seeing in a physical encounter: hands held protectively in front of the face, head lowered, quick steps moving forward: Don’t photograph me! – It won’t help. The camera alone does not know any virtue of omission. It needs a person who pans away or switches it off. The disembodiment of the gaze makes us all models. Why does the self-representation remain limited to the internet if we are all extras in front of the camera in the public space? Who sees these pictures? Who observes us? Who applauds, who laughs, who suffers alongside us? Where are the blockbusters of everyday life?

Averting the gaze I

A virtue of omission, as the photographer could cultivate it in physical absence and in interaction with what should be portrayed, lies beyond the possibilities. However, it is possible to relieve and compensate in another way. For example, paint bombs could be thrown at surveillance cameras in order to force omission. Another option for conspicuous resistance is the reassessment of one’s self as the self-portrayer: compensation of omnipresent monitoring by cameras could come in the shape of flash mobs and reclaim-the-streets campaigns, street theatre that is addressed at the faceless controllers behind the cameras and the operating companies. The recently popular ‘morphsuits’ and the ‘Pixelhead’ designed by Berlin artist Martin Backes



could also be used in order to force the aversion of the disembodied technical gaze. Martin Backes writes about his face mask kept in pixel design: 'The full face mask Pixelhead acts as media camouflage, completely shielding the head to ensure that your face is not recognizable on photographs taken in public places without securing permission. A simple piece of fabric creates a little piece of anonymity for the Internet age'. The morphsuits were invented in Scotland three years ago; they are colourful full-body suits that so far have been worn mainly for fun events like football games, rock concerts and stag parties. Their social-political potential has hitherto remained unused. The wearing of a burka in the light of a surveillance camera would be a denial of one's own image, a transformation into a black moving object.

Averting the gaze II

The visual pluralisation of life can confuse real historical events and fictions. An example of this is the tourist guy. He was very popular in 2001: a young man with glasses, a hat and backpack appears at spectacular events. He faces the spectator always in the same pose in photos. Behind him, the Hindenburg zeppelin goes up in flames. He stands on the railing of the Titanic in the port and later in the lifeboat, while the ship sinks behind him. He stands on the World Trade Center with New York behind him and an airplane flying directly toward the skyscraper.

These pictures are confusing because they play with situations

that everyone knows to be part of our collective visual memory without having been present on site. The re-identification effect is a type of game in the economy of attention. The photographer confuses us by changing the perspective. The young man behaves like a tourist that poses in front of sites of natural beauty or famous buildings.

It quickly became clear that these pictures were hoaxes and urban legends. But the photo montages say something else. The tourist guy turns his back on the catastrophes instead of photographing them. He creates a blind spot by turning the camera on himself and turning away from the horrifying thing. The horrifying thing is visible for the beholder of the pictures, not for those who experience the inferno. The tourist guy is involved, but not in the middle. And he fulfils Virilio's call: he turns away – stands with his back to the sensation and the catastrophe – and hides from the camera, although he is turned frontally toward it. The lenses of his glasses look shadowed due to the angle of the light. His true identity is of no importance, and it is also insignificant whether or not he assumes responsibility.

The tourist guy is the hitchhiker of the 21st century, a surfer on a huge wave, who decides himself, when he comes and he will go.

Only one thing remains – a photo.





Media and photos pluralise life and experiences and counter the impression that life is too short

WORLDS FULL OF POSSIBILITIES

The construction and non-reproducibility of reality: Herbordt/Mohren, artists and members of the *Junge Akademie*, break conventions in order to open up new areas of experience

BY ULRICH PONTES



The stage as a space of possibility: Melanie Mohren and Bernhard Herbordt discuss alternative plots for their play – in the middle of the play

With small figures, Melanie Mohren and Bernhard Herbordt plot possible scenes in a model hill landscape. Sitting at a large desk, the young directors discuss the plot and staging of their play 'Wonderland'. The landscape in front of them is projected live and in real life size onto a screen so that the spectators can also discern everything. Because the dramaturgical discussion does not take place anywhere, but rather on the theatre stage. It is not simply a talk about 'Wonderland' – it is also a very part of this play. Welcome to 'Wonderland', Act two.

While the theatre world remained largely intact during the first act – with one actor and a theatre box as the central prop, with light and music and voices offstage –, everything goes haywire in the second act. Herbordt and Mohren are no longer just the creators of the play but they become its protagonists, or maybe rather its anti-protagonists, as they explode the formal framework of the performance. The self-referential play in a play climaxes with an arbitrary but impressive quantification of the possibilities: 'Assuming a preparation time of four months

for this evening, you could calculate that each of the 50 minutes of this evening would require 950 minutes of preparation and research', reports Melanie Mohren. 'For every minute of this evening, therefore, there are at least 950 other possibilities for how it could have turned out'.

What the theatre performance actually looked like, with its blending of protagonists and directors, of play and metalevel, can be seen in excerpts at any time on the video portal 'Vimeo'. Herbordt and Mohren have drawn a lot of attention in the professional sphere with this and other productions. Critics write of the directors playing with 'unaccessed utopia reserves', of their use of the 'stage as a space of possibility', of a work with the 'power of the imagination that transcends the bare facts': All elements of the theatre 'are worked through and taken to their limits in order to push theatre beyond its conceptual boundaries'.

In 2011, Herbordt and Mohren set out to overcome the social limits of the theatre and art world: they successfully applied for membership in the *Junge Akademie* as the only artists among academic scholars. The step, however, was no far cry from their previous experience, says Bernhard Herbordt. The theatre-makers, born in 1978 and 1979, sit on tables pushed up against each other in their current studio in the *Künstlerhaus*, a contemporary art institution in Stuttgart. When speaking, they take turns every few sentences, add on to each other's statements without interrupting or contradicting. The two met in 1998, at the entrance examination for the degree programme in 'Applied Theatre Sciences' in Gießen, which the newspaper *Die Zeit* described as a 'talent factory for the national aesthetic elite'. In public, the two began their "slash existence": Herbordt/Mohren. Consistent with this, they share their seat at the *Junge Akademie*: they count as one of the 50 members in accordance with the articles of the academy, although they are two people.

Their studio is unadorned, almost cold. At most, Apple notebooks and an espresso maker hint at art and creativity; in combination with the casually and unobtrusively dressed artists behind their natural wood tables, the atmosphere shifts between a workshop and an advertising agency. Their productions have been awarded, among others, the North Rhine-Westphalia Radio Play Prize, the sponsorship award from the Bonn

Beethoven Foundation and the MusicTheatreNow prize from ITI-Germany. As part of their research, Herbordt/Mohren have continuously been seeking discussions with experts, often also with academic researchers. From 2008 to 2010, the interdisciplinary contact was particularly intense. The two then resided as fellows in the *Akademie Schloss Solitude* in Stuttgart, where such encounters were institutionalised in an 'Art, Science and Business' programme. 'Back then, at Solitude, the scientists were aliens among us artists', says Melanie Mohren – and adds, grinning: 'Now the relationship is vice versa'.

Herbordt/Mohren consider many parts of their work as not much different from academia. Their artistic life, according to Bernhard Herbordt, is 'much less romantic than you would imagine': the two of them spend most of their time at the computer, attending to tasks like doing research, collecting material and applying for projects. Above all, however, Herbordt/Mohren understand their work as a way of exploring and investigating the world. 'There is no art that does not research, as long as it maintains an interest in the medium of art', postulates Mohren. And like the scientific version, their artistic research also aims at the process, at experience and discovery – which, according to them, makes it different from what normally happens in any other theatre, where the work is always focused on the product, the performance.

In recent years, their artistic development has brought Herbordt/Mohren to razing other allegedly constitutive foundations of the theatre. 'The audience sits down, the auditorium is darkened and they look towards the light'. This is how Bernhard Herbordt describes the conventional separation between the spectators and the stage, which the duo has overcome in the meantime. The result consists of works that needs clumsy compounds like 'theatre installation' or 'staged exhibition' to describe it at least partially accurately – along with the conventions, the regular terms are exploded too.

Since 2010, Herbordt/Mohren have been on the road with their project 'Everything that I have'. The respective titles then were 'Everything that I have', numbered in ascending order. What it stands for is a kind of inventory of the duo's previous work: Herbordt/Mohren have collected research findings, text and conversation fragments, artwork, utility items and more in an

archive. In it, everything is not only listed and numbered in a very orderly way, but also placed in relation and linked to each other. The core consists of 170 questions that they developed from their findings, such as ‘Who speaks when I say “I”?’ – ‘What are worlds made of?’ – ‘Are we alone?’ and many more. Via their numbers, the questions refer to over 2,000 large-format archive notes with photos, texts and copies from books. Objects and conversations with scholars and artists, journalists and activists that have been condensed in various recordings are also included. Every archive element refers back to the original questions.

Herbordt/Mohren have realised various editions of ‘Everything that I have’ in Berlin, Stuttgart, Mannheim, Frankfurt and Novi Sad. The archive material has been arranged into a sort of exhibition in each case. The visitor moves around in it, and while doing so, he or she can follow at will one of many tracks laid by the welcome letter or audio guide or similar clues, or listen to his or her spontaneous inspiration. In the meantime, the archiving and inventory counting continues. The reactions of the visitors are also incorporated into the archive. Accordingly, in ‘Everything that I have #4’, there is a list of over 400 movements that visitors of the archive can complete. Herbordt/Mohren even assembled a subtle choreography from them, which are offered by actors among the visitors, thus becoming part of the staging. Ultimately, all the borders become blurred: ‘With every movement, you become a part of this archive’, Herbordt/Mohren explain to the visitor in one of the audio guide recording tracks. ‘Each note that you add in thought to those around you makes you an author, protagonist or performer in this archive. Now. And now again’.

The spectator as author, as protagonist, who finds only building blocks and completes the critical part him- or herself, namely ‘constructing his or her own unique space in the mind’, as Mohren phrases it: this do-it-yourself aspect of theatrical performance does not grow out of formal playfulness, but rather out of conviction in content. ‘The archive is there in order to show its gaps and put the question to the viewer: What does he have himself? What does his own inventory look like?’

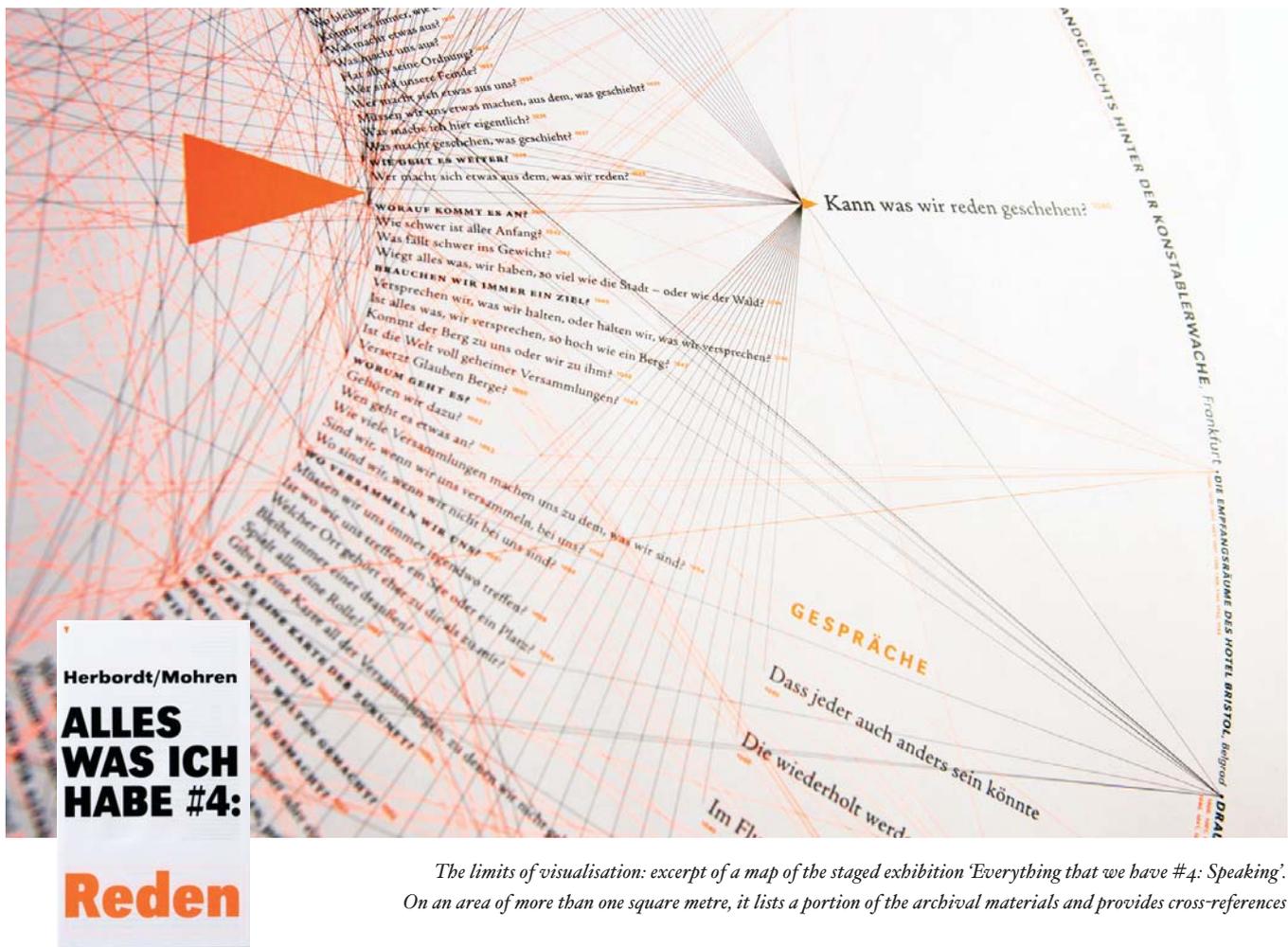
Herbordt/Mohren do not want to convey their view of the world

through the archive, but rather, they are aiming at something deeper. Herbordt says: ‘It is all about the process of construction’. The visitor should make his or her own connections, while he moves in this small section of the world. He should, exemplarily, construct his own picture of the archive – and consciously experience how subjective, arbitrary and open this process is, which yet represents the central mode of human discovery: ‘Because this process runs continually, because this is the way we read the world’.

Herbordt/Mohren may not radically question reality as such – the fundamental issue for them is the ‘belief in the changeability of the world’ and the resulting question: ‘How can we move and act for the benefit of this world?’ The attempt to create an image of reality, whether visually or in any other medium, is however doomed to fail according to this type of reading. The duo does not see the primary task of art in portraying parts of the world, but rather to problematise the omnipresent connection between the image and the construction process.

With regard to ‘Everything that I have’, Melanie Mohren says: ‘The archive is naturally a picture or at least a piece, a mini-fragment of that. But it does not lay claim to visualising anything. Actually, it visualises the gap, the incapacity of being able to visualise’. The artists’ scepticism concerning “visualisation” is related to the form of media in and of itself, the impossibility of representation, and not to one particular sensory channel. If, in the topic of seeing, we consider the receiving subject instead of the visual object, we come to what was the central aspect for the artists in the most recent issue of the archive project ‘Everything that I have #5: Watching’ (2011). Bernhardt Herbordt says: ‘We have tried to grasp watching with regard to how, just by being watched, the viewed object changes’.

In the meantime, Herbordt/Mohren’s latest project is about to be on public display: the construction of an – initially – fictional institution, which will of course happen in a theatrical context and with the active inclusion of the public. The two consider the subject almost inevitable after the archive project. ‘The next step obviously is the question: is there an institutional or organisational form that makes the work on such an archive possible in the long term?’, says Herbordt. Besides the continuity in content,



The limits of visualisation: excerpt of a map of the staged exhibition 'Everything that we have #4: Speaking'. On an area of more than one square metre, it lists a portion of the archival materials and provides cross-references

the subject also touches on existential questions for Herbordt/Mohren, because up to now, there are no structures in the art and subsidy landscape that could facilitate work like theirs over a long period of time, without the artists constantly changing sponsors and, in consequence, their place of residence.

In this context, they are grateful for their inclusion in the *Junge Akademie*: five years of membership are at least a sufficient time horizon for substantial cooperation projects, Herbordt/Mohren explain – beyond the 'system of material delivery and illustration

services', in which the meeting of art and academia usually remains stuck. They have met scholars from various disciplines at the *Junge Akademie* and now have regular discussions with them. One of them even works on the subject of institutions, 'and he believes, like us, in the changeability of society', say Herbordt/Mohren. 'It really is a great thing to recognise that questions, motivations and goals are actually so similar, even if the languages and media with which one operates are diametrically opposed to each other'.

NEW MEMBERS

BY SIBYLLE BAUMBACH, LÁSZLÓ SZÉKELYHIDI



KATHARINA HEYDEN

All the way to antiquity and back, interdisciplinary and intermedial: Katharina Heyden studies the history of Christianity. Her sources are historical documents, but also archaeological findings, fine art and music – she thus strikes out on new paths in a text-focused field. It is her goal not only to discover certain developments in the teachings and lives of Christians, but especially to uncover the fissures and fractures in this history, which have contributed to Christianity's potency and shaped its self-image as well as its public image. Her journey led her via the universities of Berlin, Jerusalem, Rome and Jena to her current position in Göttingen. We are looking forward to new discoveries in the theological realm with Katharina Heyden at the *Junge Akademie*.

WOLFGANG GAISSMAIER

In this world, nothing can be said to be certain, except death and taxes. This is a quote not by him, but by Benjamin Franklin. Wolfgang Gaissmaier however is trying to comprehend how we handle uncertainty and make decisions, whether they concern medical treatments or the purchase of a smart phone. He is a staunch Berliner who, after his studies in the capital, has been awarded the Otto Hahn Medal and now holds a teaching and research position at the Harding Center for Risk Literacy at the Max Planck Institute for Human Development. We are excited about decision aids for our plena and hope that his dream of a society of responsible citizens will come true – at least in the shape of an *Akademie* of responsible members.



LISA KALTENEPPER

She is currently commuting between Heidelberg and Harvard, between her Emmy Noether Group at the Max Planck Institute for Astronomy and her position as Research Associate at the Harvard-Smithsonian Center for Astrophysics. Travelling with her is the Heinz Maier-Leibnitz Prize. Foreign worlds are her speciality: Lisa Kaltenegger is an expert on extrasolar planets and their atmospheres and biosignatures. Could these remote celestial bodies provide similar conditions to Earth, could there even be life on them? With her research team, she examines spectral fingerprints and models atmospheres. We are excited to discover new worlds with her.

GORDON KAMPE

He is interested in atmospheres too: sound worlds in *'Sturzflug des Pelikans'* ('Pelican's Nosedive'), harmonies in the *'Gassenhaueramaschinensuite'* ('Hit Machine Suite'), spherical sounds in *'Butter und Fische'* ('Butter and Fish'), *'Gefühlte 70.000 Bratwurststände – Variationen über eine Befindlichkeit von Jürgen Klopp'* ('Around 70.000 Bratwurst Stalls – Variations on Jürgen Klopp's Sensitivities') – all composed by Gordon Kampe, staff member of the Folkwang University of the Arts and multiple-award-winning composer. He is interested in 20th- and 21st-century musical theatre as well as instrumentation and performance practice in the 19th and 20th centuries. Referring to his composing, he has recently said it was now 'symphony time' – a great time for him to join the *Junge Akademie*!



SILJA KLEPP

Scholarship in an ivory tower? Nothing could be further from the truth! Interviewing boat people between Libya and South Italy is just as much part of her studies as searching for new solutions for climate refugees in the Pacific region. Silja Klepp is a legal ethnologist at the Research Center for Sustainability Studies at the University of Bremen. She was awarded the Christiane Rajewsky Prize by the German Association for Peace and Conflict Studies. Her work shows that politically sensitive issues can be addressed from different places than a desk. She is constantly looking for innovative methods for responsible scholarship in the globalized 21st century. We are looking forward to debating methods with her at the *Junge Akademie*.



HENRIKE MANUWALD

Dare to be different! She does just that by rediscovering medieval texts and looking into their medial aspects and mechanisms of visualization. Apart from new findings among forgotten manuscripts, she also succeeded in conceiving of a new image of 13th-century literature. Henrike Manuwald did her first degree and her PhD in Cologne. She has been a Junior Professor at the University of Freiburg since 2008 and was awarded the Heinz Maier-Leibnitz Prize. Her focus of research is on the interactions of text and image in medieval manuscripts as well as on the treatment of legal discourses in literary text of this era. We are looking forward to intermedial and interdisciplinary dialogues with her at the *Junge Akademie!*

ANGELIKA RIEMER

She has declared war on the human papillomavirus and is taking vaccine development one step further than the present research. The vaccine available today can prevent an infection with the carcinogenic viruses. Meanwhile, Angelika Riemer is working on a therapeutic vaccine which should induce the immune system to destroy cells that have degenerated already. Having held positions in Vienna, Melbourne, Bristol and Boston, the multiple-award-winning private lecturer is now developing the vaccine as Head of the Junior Research Group Immunotherapy and -prevention at the German Cancer Research Center in Heidelberg. 'New therapy for cervical cancer' – maybe these news will coincide with her time at the *Junge Akademie!*



JULIA TJUS

What it is that holds the universe together at its core and how it develops on a larger scale – this is her field of research. Julia Tjus is a Junior Professor at the Department for Physics and Astronomy at the University of Bochum and is looking for the sources of cosmic radiation. Her research group is part of the global hunt for cosmic neutral particles: neutrinos and photons that can tell us something about interactions around radiation sources. She has held positions in Wuppertal, Örebro, Dortmund and Göteborg and is now increasingly often in Berlin. Let's hope she won't have to fly to the South Pole to find the neutral element in the often charged discussions at the *Junge Akademie!*

REBEKKA VOSS

After Cologne, Duisburg, Düsseldorf, New York, Tel Aviv, Harvard and Oxford, her current stopover is Frankfurt. Here, Rebekka Voß is a Junior Professur for the history of German and European Judaism at the Institute for Jewish Studies at the Goethe University. She is researching cultural transfer in the context of Jewish cultural, intellectual and religious history and Jewish-Christian interaction. Her main focus is the influence of eschatologies on contemporary culture. Since our own Last Days-visions concerning the *Junge Akademie* have been moved to a distant future with its institutionalization last year, we are all the happier to be able to explore their influence on our work with Rebekka Voß.



JADWIGA ZIOLKOWSKA

Agricultural and environmental policies, the economics of natural resources, renewable energies, biofuels, sustainability, climate change, decision aid, multi-criterial optimization of uncertainty and politics evaluation: you name it, she does it. Which makes Jadwiga Ziolkowska, Research Assistant at the Faculty of Agriculture and Horticulture at the Humboldt University of Berlin, ideal for two thirds of our research groups. She is preoccupied with questions of sustainable structure for agricultural and environmental policies as well as bolstering the academic and social dialogue with policymakers. We are looking forward to many exciting projects with her at the *Junge Akademie!*

ALUMNI

BY ULRIKE VON LUXBURG, ROBERT WOLF



FRIEDRICH VON BORRIES

came to the *Junge Akademie* as an architect who explicitly 'does not build', but rather drafts imaginary spaces in which ideas, thoughts and wishes can circulate. Many of these spaces became tangible before our eyes, in the shape of exhibitions, salons and texts at the interface of art and research. In the meantime, Friedrich has become a professor for design theory, a curator, novelist – and we would like to continue being guests in his thinking spaces.

TILMAN BRÜCK

enriched the *Junge Akademie* not only through his cooperation in the research groups for minorities and égalité. For two years, he steered the fortunes of the *Junge Akademie* as a member of the executive committee and, as co-founder of the 'Global Young Academy', built a global institution from scratch.



ANKE JENTSCH

was always bustling and on the move: as a member of the executive committee and in numerous research groups. Our expert for extreme events and disturbances directed her energy into harmonious channels in the *Junge Akademie* until she presented her own data as sound to the research group on Art as Research!



MATTHIAS KLATT

got involved in many places: on the executive committee of the *Junge Akademie* as well as in the Egalité and Teaching research groups. His particular interest was science policy, where he was an advocate for, among other things, more quality instead of quantity in the appointment processes for professors and addressed the problems of family fathers at the university. He defined the picture of the (male) professor with a tiger duck in his hand ...



SABINE KOLLER

was connected with the *Junge Akademie* in many ways and was inexhaustibly in action: at plenary sessions, on prize juries, selection committees, in various research groups and, last but not least, together with Matthias Klatt – as the publisher of the Teaching Primer (*Lehrfibel*). Unforgotten is her German-Yiddish reading in the freezing vaults of the former synagogue of Regensburg where guests were advised to bring hot water bottles.





REBEKKA VON MALLINCKRODT

not only showed us how to survive in water, but also introduced us to various swimming practices and debates: her virtual tour of the dangerous banks of the Seine in the 19th century will remain in our mind for a long time, as will her discovery that a horizontal position may not be adequate for a rational human being ...

KERSTIN MARTENS

researches PISA and educational policy, non-governmental organisations, international relationships – all central issues and interests of the *Junge Akademie*. She contributed her expertise to our ranks in the Human Rights research group.



HANNES RAKOCZY

went in search of answers, among others, in the Rhythm and Other Minds research groups and was a dedicated member of the jury of the annual prize question. After a review of the answers to the prize question 'What are we dreaming about?' Hannes ultimately had to face the question 'Who will have a crisis?'

BÉNÉDICTE SAVOY

shaped our debates with French esprit and passionate discussion contributions both in the plenum and on the executive committee as well as in the work groups. Never at a loss for a clear point of view, Bénédicte constantly surprised us: with heaps of praise for German universities and with her dreams and traumas in the preparation of the Napoleon exhibition at the *Haus der Geschichte* (House of History) in Bonn.



PHILIP WALTHER,

our quantum (not: quota) physicist, was a member of the executive committee for one year and teleported not only regularly from Vienna to Berlin and back, but also to various outposts in China, South Africa and Tenerife. We recall the many workshops he held with the Borders of Quantum Theory research group for the purpose of entanglement.

THE LONG ROAD TO SUSTAINABILITY

The Global Young Academy addressed the future of academia in South Africa. One thing is clear: there is still a lot to do

TEXT + PHOTOS EVELYN RUNGE

***A library is a laboratory of human inspiration,
a window to the future.***

(Ladies' toilets, Gordon Institute of Business Studies, Johannesburg)

On the final evening of the Global Young Academy's annual conference, Amal Amin Ibrahim S. Nada requests a photo. The Egyptian only wants a photo with the male scientists: Men in Science! It is a visual reversal of a discussion that the participants had been addressing for days: How can women be empowered in science? For this reason, Amal Amin formed a research group on the first day of the collaboration in Johannesburg, South Africa: Women in Science.

More than 80 young scientists from 40 countries met from May 20th to 23rd, 2012 on a campus at the University of Pretoria for a congress of the Global Young Academy (GYA). Its motto was 'Sustainability: Lessons on the road between Rio and Rio+20'. The participants came from countries such as Sudan, Ethiopia, Egypt, Israel, Iran, Bangladesh, Sri Lanka, Thailand, USA, Canada, the Netherlands, Scotland and Germany. The host was the newly formed South African Young Academy of Science. South Africa could well assume a bridging role in the Global Young Academy as a mediator between developed and less developed countries.

The conference was supported, among others, by the South African Ministry for Science and Technology, the German Ministry for Education and Research, the German-South African Year of Science, the IAP – The Global Network of Science



The location of the congress: Gordon Institute of Business Science in Johannesburg



Science as a career option? GYA participants also visited schools like this one in Pretoria

Academies, the Academy of Science of South Africa and Institutes of the University of Pretoria.

The question regarding the shaping of sustainability ran through all the discussions at the congress, both formal and informal ones. The subject relates to various areas: the promotion of future scientific talent; the networking of scientists across country and discipline borders; the use of resources and resource consumption, but also making resources such as education and knowledge accessible; the collaboration and personal acquaintance of scientists in various countries, whose economic and social development can differ immensely.

Bruce Alberts, Editor-in-Chief of 'Science' and GYA Board Member, said in his lecture: 'To spread science, we must spread scientists'. Scientists must be visible. But how can we communicate science to the outside world? What images of science and scientists do the media transport? And how can science be conveyed as a career option and a means for social progress?

The importance of these questions was becoming clear at outreach activities which also were a part of the congress: visits to schools in Alexandra, Johannesburg's largest township, the Diocesan School for Girls in Pretoria and the Sci-Bono Discovery Center, for example. In Alexandra, the scientists presented the game 'Expedition Moondus' which was developed by De Jonge Akademie (The Young Academy in the Netherlands): the players discover the planet Moondus as researchers. In the Sci-Bono Discovery Center, GYA members taught school classes in their respective professional areas. The pupils came from more peripheral areas of Johannesburg: often, there are only two school computers for 900 pupils; many children live with families of six or more persons in one to two room apartments. It was evident that boys were more inclined to participate in the experiments. However, the same applied to boys and girls: when it came to the question of who would like to become a scientist by profession, hardly anybody responded.

The congress programme was densely packed with lectures and research group meetings, so even hour-long trips were scheduled as 'working trip by bus' – including one to Maropeng. Here, at the place described as the 'cradle of humankind', archaeological discoveries have been made repeatedly for years, providing infor-

mation about the evolution of the human race. Lee Berger gave the evening lecture. He reported on his finding of the *Australopithecus sediba* in 2008, one of the previously unknown hominid types. As thrilling and exciting as the story about his career was: it was rare that colleagues or even a team were mentioned; it was as if Berger's research consisted only of himself.

The lecture prompted discussions among congress participants over the coming days: Does extreme egoism serve science? Does science need storytelling processed by mass media? Or do the public and potential future scientists gain a false impression of scientists' often dull work carried out behind the scenes? Phases of lonely research and scientific setbacks dwindled to particles of a heroic story in Berger's enthusiastic and engaging lecture.

And: Why were there only white scientists sitting at Lee Berger's table – and only male ones?



GLOBAL YOUNG ACADEMY

The GYA was formed in 2010 – with support and according to the model of the *Junge Akademie*. Since then, Young Academies have emerged in many countries. At their presentation in Johannesburg, however, it became clear that there are differences in the selection criteria and internal structures, for example. The Scottish Young Academy consists of both scientists and artists as well as entrepreneurs; the Dutch Young Academy insists on a gender balance in the nominations, and the newly formed South African Young Academy stresses equality according to the motto: 'Every member has his role; nobody is less valuable than anybody else'.



The MS Science (MS Wissenschaft) toured German waterways from June to October. On board ...



... this year, the exhibition 'Future Project Earth' ...



... with of the Sustainability research group's interactive exhibit

PROTECTING RESOURCES IN A PLAYFUL WAY

The sustainability research group created an interactive exhibit for a swimming exhibition for the Science Year 2012

BY ALMUTH KLEMENZ AND MARTIN WILMKING | PHOTOS BY MICHAEL KUPHAL

The subject of sustainability has particular significance in science and society this year – the Federal Ministry for Education and Research is organising the Science Year 2012 for ‘Project Future Earth’. Some members of the *Junge Akademie* took this as a cue to create a forum for their understanding of sustainability. The goal: developing ideas and projects at the interface of science and society, inspiring people to address sustainability issues. Accordingly, in September 2011, the Sustainability research group was founded.

The term ‘sustainability’ is lacking an international standardised definition to date, which is why it has a vast number of meanings. The research group members also stand for a broad spectrum of various focal points. Their interests range from social aspects of sustainability in university everyday life, i.e. issues such as the wasting of resources through exaggerated competition for the funds of third parties or the tendency that the quantity of publications is placed before the quality, and the question of sustainability in science – including the question of whether sustainable science is possible at all – up to the implementation of concrete projects.

Which is why the research group largely financed the interactive exhibit ‘Using energy sustainably’, which was conceived and implemented as a joint project of the *Junge Akademie*, the University of Greifswald and the wind power plant manufacturer Enercon. The learning game played by touchscreen shows possibilities and limits of the sustainable handling of energy. Concretely, it is about how carbon dioxide emissions and energy consumption on the level of a house, university or a city can be reduced.

Haven’t we all asked ourselves how sensible individual energy savings measures are with regard to their environmental impact? How much carbon dioxide emission is avoided in a household by the use of energy saving bulbs, how much through the use of ecologically produced electricity? The even more important question here: what is the relation of these measures’ savings; which measures generate the biggest “bang for the buck”, meaning saving the most carbon dioxide emissions with the least amount of money? Or imagine you were an environmental manager at a university: would you prefer to introduce biologically produced cafeteria food, modernise the heating system or purchase recycled paper if you only had a limited budget available for the improvement of your university’s environmental performance? In the environmental game, it is a matter of testing things out. The ultimate goal behind the game is to encourage the players to pursue environmentally friendly conduct in their everyday lives.

With this exhibit, the Sustainability research group is taking part in the exhibition of the Science Year 2012, where research for sustainable developments was shown on the MS Science, a converted cargo ship. The swimming Science Center brings science to life in an entertaining way every year and offers fascinating insights into research, above all to pupils and families. From May to October 2012, the exhibition ship made stops in 36 cities in Germany and Austria; over 100,000 visitors were expected (see www.ms-wissenschaft.de for the tour plan). Afterwards, the application co-developed by the Sustainability research group will be available for at least one year at www.energie-nachhaltig-nutzen.de 

POOL OF IDEAS FOR THE UNIVERSITY OF TOMORROW

UniGestalten: Contestants developed over 450 concepts for further development and testing

BY KATIA GLASER | PHOTOS BY JOERG LIPSKOCH

Daily life on the campus can be improved in many innovative and creative ways. This is a result of the ideas competition called *UniGestalten*, which in German means both ‘shaping uni’ and ‘uni figures’. *UniGestalten* is a joint project by the *Junge Akademie* and the *Stifterverband für die Deutsche Wissenschaft* (Donors’ Association for the Promotion of Science and Humanities in Germany) conducted in the entire German-speaking area. The goal was to generate a pool of ideas with concrete recommendations that ease and improve everyday life at universities through new approaches and perspectives.

Everyone who wants to shape and develop life and work at university was able to participate: students from all professional areas and university types, alumni, staff in teaching, research, technology and administration as well as project partners from the economy. From the middle of October to the middle of December 2011, 462 ideas for the university of tomorrow were submitted to www.unigestalten.de. 688 participants discussed them in 3,700 comments and jointly developed their ideas. There was a total of EUR 15,000 in prize money for the thought leaders in the matter of everyday life at university (see box on the right).

The ideas were supposed to be innovative, realistic, implementable and transferable. They were also supposed to be understandable and presented well – these were the selection criteria. It was not easy for the jury to determine the winning ideas on account of the high quality of the contributions and the diversity of the spectrum of themes. ‘The idea of having projects developed at universities from the bottom up, i. e. on the basis of the students and university staff, was very popular,’ said Volker Meyer-Guckel, the deputy general secretary of the

Stifterverband. And Alexander Knohl, Professor for Bioclimatology at the Georg-August University of Göttingen and Project Director of *UniGestalten*, added: ‘Many of the ideas show that we do not need a lot of money in order to initiate good projects’.

The eight-person jury was headed by the Munich philosophy professor Julian Nida-Rümelin, who is also involved in the Council of the *Junge Akademie*. He summarises: ‘The fact that so many constructive ideas have been submitted – particularly on the subjects of communication and media, new learning and teaching as well as health and coaching – shows that the requirements of everyday studying and working have increased enormously, but at the same time we have great potential at universities to shape the ongoing developments creatively’.

The ceremony for the awarding of the prize took place on June 30th at the *Junge Akademie*’s celebratory event in the Berlin-Brandenburg Academy of Sciences and Humanities with about 200 guests. Ultimately, however, everyone was a winner in *UniGestalten*: The web portal was edited as an idea pool. Since the middle of June, every interested party has been able to browse through ten subject fields, take up ideas and discuss them with others. The goal is for a large number of projects to be developed and realised.

What was the starting point for the suggested improvements? It became clear that tomorrow’s university belongs to today’s digital natives. The subject of ‘communication and media’ was by far the most discussed among the competitors. Over 100 suggestions were received here. About half of them relate to the advantages of digital communication possibilities such as mobility, networking and targeted information. There are 13



*Prominent Project Ambassador:
Klaus Töpfer*



*Chairman of the jury:
Julian Nida-Rümelin*



*The winners:
Johannes Bayer and Roman Linzenkircher, inventors of a podcast project*



The victors of the contest and winners of EUR 5,000 are Roman Linzenkircher and Johannes Bayer, students at the University of Augsburg. Their project 'student. stories – informing and integrating with podcasts' offers help with orientation and facilitates new experiences in international exchanges.

Patrick Noack, Jan-Mathis Schnurr and Tom Sporer, two students and a research assistant, also from the University of Augsburg, won EUR 3,000 with 'Demokratix', an online tool for more transparency and participation in decision-making. The instrument for organisational development involves students in the improvement of the degree courses and teaching. The third place was taken by the micro-donation campaign 'Facilitate a scholarship with one euro' by Nick Wagner, a research assistant at the Technical University of Dresden. He was awarded EUR 1,500 for the initiative introducing alternative financing models.



The runner-up: Tom Sporer created 'Demokratix' with two colleagues



Nick Wagner thought up a micro-donation campaign and was ranked third



How can everyday life at universities be improved? Impressions from the video presenting the ideas competition

contributions alone that would use special smartphone apps for everyday university life. Diverse initiatives and events improve the university's internal and external communications and the communication among students. Twelve contributors wished for lectures and tutorials to be recorded made available medi-ally. Still, six ideas were related to a traditional medium: they addressed how books can be recommended, exchanged and also written.

The teaching of digital students is also facing new tasks. Over 130 ideas were submitted to the subjects 'New Learning' and 'New Teaching'. 25 of them introduce new learning formats to promoting professional, practical, social and creative competences. 23 projects deal with new didactic approaches, 17 with questions of motivation and evaluation, and five participants suggest alternative examination procedures. 26 participants developed new learning methods and content: from General Studies as a minor subject to interdisciplinary and problem-based learning all the way to learning management as a means of optimising learning processes and learning behaviour. 15 authors addressed language and science competences as well as orientation in degree courses and professional careers.

About 30 ideas were submitted to the topic area of 'mentoring,

coaching, support'. Half of these recommendations relate to mentoring programmes for undergraduate and PhD students. Five contributions develop coaching offers for students and teaching staff – in individual projects, across faculties or aiming at personal learning success. Seven idea providers thought about other possibilities for support and advice.

Other subject areas in *UniGestalten* included 'Campus, Organisation, Administration', 'Financing', 'University Policy' and, particularly relevant for the general public, 'Mission Society'. About 30 ideas deal with this: considerations on public welfare balancing of universities can be found among them; suggestions for child support and family, equal opportunities and integration or concepts for partner programmes with companies. 'Showing flags' is a university project for international understanding; 'Unikiosk' offers a display window for student involvement. In accordance with Klaus Töpfer, the former director of the UN environmental programme, who states in his ambassador statement for *UniGestalten*: 'The university of the future: it has to be open for the integration of civil society into the research processes. Beyond interdisciplinarity, it has to be designed in a highly productive transdisciplinary form. By no means does this presume only financial investments. Primarily, it requires investments in ideas, in independence, in openness towards the world'.

RUSSIAN-GERMAN COOPERATION

German-Russian Young Researchers Forum established with the participation of the *Junge Akademie*

BY KIRILL DMITRIEV

An international photo competition under the motto 'Visions and Images of Fascination. Sciences and Humanities Visualised', a bi-national colloquium on Digital Philology, a joint conference on the subject of science and research management or a 'fact-finding workshop' on 'Christian and Muslim Interactions in the Middle East from the 10th-15th Centuries' – these are only few projects that the German-Russian Young Researchers Forum has initiated within less than a year of its existence.

The basis of the collaboration is provided by the Memorandum of Understanding between the *Junge Akademie* and the Council of Young Scientists at the Russian Academy of Scientists. It was signed in May in Berlin during the ceremony celebrating the conclusion of the German-Russian Year of Education, Science and Innovation. The podium discussion, which took place on this occasion, also emphasised that some bureaucratic hurdles had to be overcome in order to facilitate the research collaboration between the two countries. The visa requirements make the exchange significantly more difficult, and problems regarding the mutual recognition of degrees and diplomas block career paths. Nevertheless, fruitful network-

ing on both academic and cultural levels is still possible. This was demonstrated at the ceremony in Berlin by three German-Russian tandems with a combination of performance and a joint lecture under the motto 'Connected! – Networks from a German-Russian Perspective'.

The German-Russian Young Researchers Forum is meant to strengthen the collaboration between young researchers in both countries. It was launched within the framework of the German-Russian Year of Education, Science and Innovation 2011/2012. The initial workshop in December 2011 in Moscow was followed by the second meeting in April 2012 at the Berlin-Brandenburg Academy of Sciences and Humanities in Berlin and the German National Academy of Sciences Leopoldina in Halle, the two parent institutions of the *Junge Akademie*. The Egyptian Museum and the Papyrus Collection of the Prussian Cultural Heritage Foundation were involved as cooperation partners. The initiative was supported substantially by the Leopoldina and the Federal Ministry for Education and Research. Also, representatives of several German research institutions in Russia contributed to the Forum with their expertise.



Representatives of the forum as guests in Halle

If you are interested in learning more about the activities of the Forum and the German-Russian research collaboration, you can visit the 'Russian-German Young Researchers Forum' Group in the Mendeley network (www.mendeley.com/groups/2340371) or contact one of the following partners:

Dr. Kirill Dmitriev, Member of the *Junge Akademie*, dmitriev@gmx.net,
 Dr. Denis Fomin-Nilov, Member of the Council of the Young Scientists, fomin-nilov@mail.ru.

COMMENT

Remarks on ‘performance-based’ salaries

BY CORNELIS MENKE



Performance incentives: Whether contemporary practice at universities would motivate employees in the private sector?

In February, the German Federal Constitutional Court ruled that professors' salaries in Hesse's salary bracket W2 are unconstitutional on the grounds that the basic salaries were not appropriate for the position. Performance-based earnings could not compensate for this, since they had no alimentary nature, at least not in their current form. They were not tied to clearly defined, predictable and compliant conditions – rather, their amount depended on how much money was (still) available.

In the debate surrounding the new salary regulations introduced in 2005, the recurring argument was that performance-based salaries provided competition-oriented incentives which had their place in the economy, but were alien to academia. Even if one considers competitive boosts in academia to be a fundamentally useful idea (or especially then), one may harbour doubts whether their current form is a successful one: the professional practice of universities is underwhelming in terms of efficiency and effectivity and

it has unwelcome side effects, in short, it is far from ideal from an economical perspective too.

How can performance be measured? University managements have a choice: they can pay additional salaries bound to the fulfilment of certain criteria, or they can agree on paying bonuses in the context of appointment and staying procedures. In the majority of cases, university managements choose the second option, meaning that little scope remains for criteria-

bound bonuses. The chemistry professor for instance, whose case was heard at the Federal Constitutional Court, received a monthly bonus of the hardly (or maybe it is) noteworthy sum of 23.72 Euros.

This could be lamented, yet incomprehensible it is not. For purposeful performance-based salary bonuses, every university would have to compile a catalogue of benchmarks. The recurring argument against these catalogues is that academic performance cannot be subjected to quantified evaluation. Yet one would probably not want to go as far as to suggest that academic performance evades any evaluation (based on passable objective principles) whatsoever. Academic achievements are constantly being evaluated: during appointment procedures, while assessing qualifying theses and reviewing articles, as well as upon deciding on research grants. These evaluations are never purely prospective; they always take the applicant's career and performance thus far into consideration. So evidently, evaluation criteria do in fact exist, and if they do, a strong case could be made for explicating and disclosing them. Incidentally, the problem of disincentives being almost always connected to them exists no matter at which point the criteria are being applied; even in appointment procedures for instance, the sheer number of publications does play a role.

And yet there is a certain appeal in making decisions about university scholars' performance precisely not within the university, but rather outsourcing appointment procedures to other institutions: universities would not have to explicate criteria – which would have to cater to

the differences between subjects or departments as well – themselves. Delegating would probably further the peace in their own institutions, and it would come closer to the goal of winning or keeping top level researchers (however they may be identified) for or at one's own university, a goal for which university managements like to use their free resources and which (to them) appears to hold more promise than a broad elevated mediocrity, let's call it. Finally, appointment procedures promise best to reflect an academic's true market value.

It is therefore understandable that performance-based salaries are granted preferably in the context of appointment and staying procedures. This in turn creates a strong incentive to apply for professorships one does not have a genuine interest in, and these feinted applications cause severe problems.

First of all, the procedure is inefficient. Appointment procedures are elaborate: they impose upon the members of the appointment commission the tasks of perusing a large number of applications, of reporting on several applicants' research in detail, of agreeing on a comparative evaluation and a ranking; they impose on external reviewers the task of evaluating several candidates comparatively; finally, the university has to embrace the outcome (or not) and, if need be, conduct negotiations. This effort is justified for the appointment of professors – American universities go to even greater lengths. But for the allocation of performance-based salaries, this effort is disproportionately large. Secondly, performance-based salaries

should provide incentives for (further) achievements. Yet appointment procedures do not place special emphasis on the evaluation of additional achievements, but rather on the life-time achievement. Those who do not rate their chances for an appointment very highly, will hardly be motivated to make additional efforts; those who do will probably have no need for them. What is more, not all achievements are acknowledged: appointment procedures place special emphasis on successful research, while other achievements are evaluated only to a limited extent. Conversely, aspects which do not reflect achievements in the narrow sense of the word, do play a role, for instance whether the applicant's profile complements the adopting institution's focal points in a meaningful manner.

Thirdly, feinted applications have side effects: the procedures take long, and chairs remain vacant for a long time; this is an imposition for serious applicants, it burdens the departments (as I said before), it ties down many resources, especially with repeated advertisements for professorships, it prevents colleagues and employees from planning ahead and, not least, it leads to a deterioration of studying conditions for the students, who cannot rely on teaching continuity and do not know their examiners.

The efficiency and usefulness of the customary procedure are therefore doubtful, and in addition, it yields collateral damage. It is questionable whether comparable mechanisms for the allocation of performance-based salary parts would meet with appreciation in private enterprises.

PRIZES + AWARDS

SYLVIA CREMER | MEMBER OF THE 'JUNGE KURIE' OF THE ÖAW

In 2011, Sylvia Cremer was elected to be a member of the *Junge Kurie*, the Young Academy of the Austrian Academy of Sciences (*Österreichische Akademie der Wissenschaften, ÖAW*). The group of about 70 young researchers pursues, among others, the goal of modernising and internationalising the Austrian research institutions.

KATHARINA DOMSCHKE | INGRID ZU SOLMS SCIENCE PRIZE FOR MEDICINE

The prize is specifically geared towards young scientists researching the fundamentals of clinical medicine or medical psychotherapy. Katharina Domschke received it for her work on the pathogenetics and pharmacogenetics of affective diseases and may look forward to EUR 10,000 in prize money.

KATHARINA DOMSCHKE, OLGA HOLTZ, AND REGINA PALKOVITS AS WELL AS THE ALUMNAE VERENA LEPPER AND CHRISTINE SILBERHORN | 100 THE WOMEN OF TOMORROW

They belong to the '100 women of tomorrow' – young women who, according to the location initiative 'Germany – Land of Ideas', will shape such different areas as fashion, theatre, economy, sports and science in Germany. The initiative wants to make exceptional people in society visible – in continuation of the 2006 project '100 leaders of tomorrow'. Regina Palkovits was also elected as one of last year's 'Four times 40 under 40' (*Viermal 40 unter 40*) by the magazine *Capital* – 40 top future talents in science.

MARC HELBLING | BERLIN SCIENCE PRIZE (FUTURE TALENT PRIZE)

The future talent prize of the governing Mayor of Berlin, which is endowed with EUR 10,000, honours 'excellent scientific performance combined with innovative, creative and practice-oriented research approaches'. Marc Helbling runs the junior research group 'Immigration Policies in Comparison' at the Social Science Research Center Berlin.

MATTHIAS KLATT | FELLOWSHIP FOR INNOVATIONS IN UNIVERSITY TEACHING

For the teaching innovation 'Basic Competence in Fundamental Rights – Developing Responsibility', Matthias Klatt receives EUR 50,000 from the Donors' Association for the Promotion of Science and Humanities in Germany (*Stifterverband für die deutsche Wissenschaft*). In the four hour compulsory law lecture in Hamburg, problem-based learning will be implemented for the first time, using newly developed teaching materials and e-learning.

GIESELA RÜHL | FELLOW OF THE EUROPEAN LAW INSTITUTE

The European Law Institute (ELI), founded in 2011, aims to improve the quality of European law. Appointment to Fellow requires a recommendation by two other Fellows and confirmation by the Council of the ELI.

BÉNÉDICTE SAVOY | RICHARD HAMANN PRIZE FOR ART HISTORY

For her research on German-French art and culture transfer and on the museum as a European institution, Bénédicte Savoy receives the Richard Hamann prize endowed with EUR 5,000.

STEFANIE WALTER | FUTURE TALENT PRIZE OF THE SWISS ASSOCIATION FOR POLITICAL SCIENCE

Stefanie Walter was awarded the 2012 prize for the best young researcher's article in a political science magazine, which is awarded every two years and endowed with 3,000 Swiss Francs.

PHILIP WALTHER | START PRIZE OF THE AUSTRIAN SCIENCE FUND

Philip Walther, Assistant Professor at the Quantum Optics, Quantum Nanophysics, Quantum Information Group at the University of Vienna, received one of the START prizes in 2011. These are the most highly endowed science prizes in Austria and provide up to EUR 200,000 annually over a period of six years for young scientists, who are thus enabled to ensure their research and build or expand their own research groups.

MATTHIAS WARSTAT | ADVANCED GRANT OF THE EUROPEAN RESEARCH COUNCIL

With his project 'The Aesthetics of Applied Theatre', Matthias Warstat, Chair for Theatre and Media Studies at Erlangen University, will carry out an international comparative study of the forms of applied theatre in Africa, Europe, North and South America as well as the Middle East. For this project he was awarded an Advanced Grant by the European Research Council worth EUR 2.28 million.

ANNA WIENHARD | FUNDING BY THE NATIONAL SCIENCE FOUNDATION

Anna Wienhard, a mathematician who teaches geometry at Princeton, has successfully raised funds from the US National Science Foundation: she received a Focused Research Grant of USD 200,000 and is involved in a 'research network in the mathematical sciences', which is subsidised with over a million US dollars.

EVENTS 2012/2013

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|-------------|---------------------------|--|
| 2012 | 30 May to 15 October | <p>Using energy sustainably
Exhibition of 'Using energy sustainably' by the Sustainability research group (developed in collaboration with the Ernst Moritz Arndt University Greifswald)
<i>Exhibition ship 'MS Science – Future Project Earth'</i></p> |
| | 10 to 14 October | <p>Sound – Note – Music: Theories and models of (national) cultural identity establishment
Interdisciplinary conference of the Sound(worlds) research group
<i>Paris</i></p> |
| | 15 October | <p>'Sustainability Spring Symposium' Planning Workshop
The Symposium is a cooperation project of the <i>Junge Akademie</i>, Global Young Academy, South African Young Academy of Science, Leopoldina National Academy of Sciences and the Academy of Science of South Africa within the framework of the German-South African Year of Science. <i>JA</i> delegates attend the planning workshop in connection with the Third Annual South African Young Scientists' Conference (16 to 18 October)
<i>Pretoria</i></p> |
| | 20 to 21 October | <p>'Archive' salon of the research group on 'Art as Research'
<i>Erlangen</i></p> |
| | 25 to 27 October | <p>Autumn plenary session
<i>Heidelberg</i></p> |
| | 30 November to 2 December | <p>Ideas workshop
<i>Ettersburg near Weimar</i></p> |
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| 2013 | 7 to 9 March | <p>Spring plenary session
<i>Göttingen</i></p> |
| | 15 June | <p>Ceremonial act
<i>Berlin</i></p> |
| | 16 June | <p>Summer plenary session
<i>Berlin</i></p> |
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PUBLICATIONS 2011/2012



KLIMAKUNSTFORSCHUNG

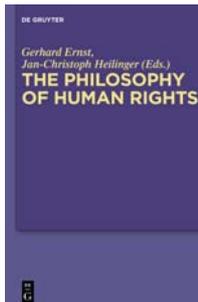
Eds.

Friedrich von Borries, Christian Hiller, Wilma Rennfordt

Publishing house

Merve Verlag

Berlin, 2011



THE PHILOSOPHY OF HUMAN RIGHTS

Eds.

Gerhard Ernst, Jan-Christoph Heilinger

Publishing house

Walter de Gruyter

Berlin, 2012



LEHRE ALS ABENTEUER

ANREGUNGEN FÜR EINE BESSERE HOCHSCHULAUSBILDUNG

Eds.

Matthias Klatt, Sabine Koller

Publishing house

Campus

Frankfurt am Main, 2012

WHAT ARE YOU UP TO ... CHRISTIAN FLEISCHHACK?

There is a life after the *Junge Akademie* – which is why we give alumni the opportunity to speak here (and shamelessly translate their answers into English)

1. Is joy important for your work – or should it be at all?

Yes.

And if yes: What brings you joy in your work?

Working. When I get to it.

2. What is mankind's greatest achievement?

The invention of the 5-year plan aka target and performance agreement.

3. If you died tomorrow, what would you be most proud of in your career?

Everything and nothing – if I am still alive the day after tomorrow.

4. What in your research is relevant for mankind?

See *Junge Akademie Magazin* 2304.

5. What advice would you give a PhD student?

Stick it out!

6. What advice would you give a professor?

Stick it out!

7. What was mankind's greatest mistake?

The compulsion to differentiate between 'Outstanding-' and 'Excellent+'.

8. What does the German science system need?

Science.

9. Should we eliminate universities?

No, what would become of administration, science ministries and accreditation agencies?

10. What has your university or research career done to you?

Sigh!

11. What did the *Junge Akademie* do to you?

Eureka! It made me five years older, but also enriched my life with new friends.



ON THE PERSON

Christian Fleischhack, born in 1975, was a member of the *Junge Akademie* from 2002 to 2007. He is now working as a Professor for Analysis at the Mathematics Department at the University of Paderborn. His main interest continues to be mathematical physics; in particular, analytic and geometric problems arising in loop quantum gravity.

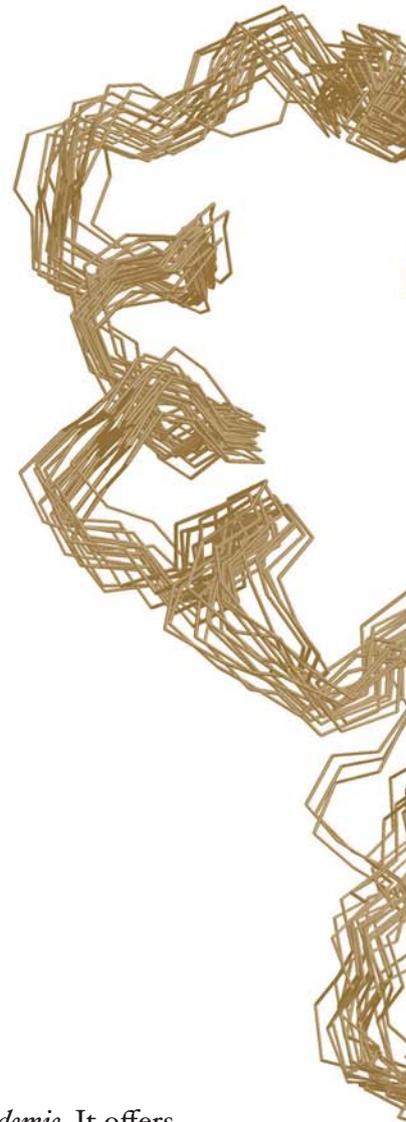
12. Do you have a say?

No.

13. What are your last words?

42 – or what was the question?





JUNGE AKADEMIE MAGAZIN

The *Junge Akademie Magazin* was conceived by members of the *Junge Akademie*. It offers insights into projects and events of the *Junge Akademie*, reports on members and publications and intervenes in current academic and science policy debates.



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