

# Image

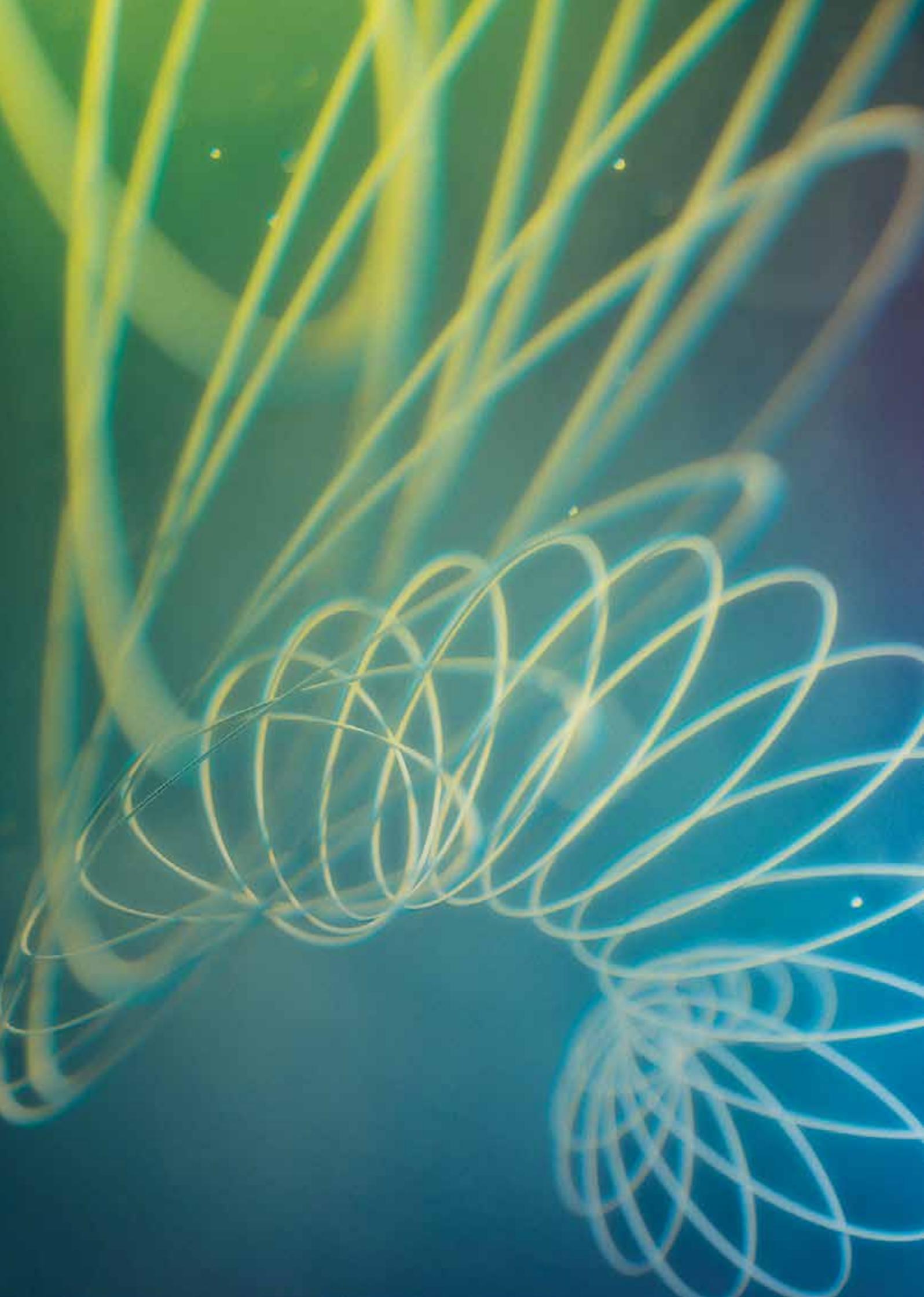
# Knowledge

# Gestaltung

# Newsletter

October 2015 **#8**

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## Editorial

Dear Readers,

How does an object become a symbol and which objects lend themselves to being the bearers of symbols? Julia Meer and Philipp Oswalt have been shooting a film about the Bauhaus lamp, which formed part of the »Bauhaus paradox«. On page 10, you can read more about the project, which appeared in the Vitra Design Museum in Weil am Rhein in September 2015.

Christian Kassung, Principal Investigator in the base project »Analog Storage Media«, is one of the lecturers on the recently launched master's programme »Open Design«. From page 11, he reports on the first week of teaching in Buenos Aires, where the course started with its first cohort of students.

The Experimental Zone and its changing experimental settings have made the concept of experimentation itself a key issue and one that the workshop »Experts in Experimentation« explored. Christian Stein reports on the event in his contribution from page 13.

Eating insects – this is the topic in Marc Schleunitz's contribution on pages 16 and 17. He has been discussing this idea throughout the summer with experts at conferences and with interested members of the public at the Federal Ministry of Food and Agriculture's open day.

At the summer school in Namibia, Sebastian Schwesinger examined the acoustic properties of sites and how the San people used these properties to select the locations for their rock paintings. He performed a series of experiments with the aim of isolating the acoustic properties of these sites and interpreting them in the context of the visual representations and existing ethnological and archaeological analyses. More on this from page 19.

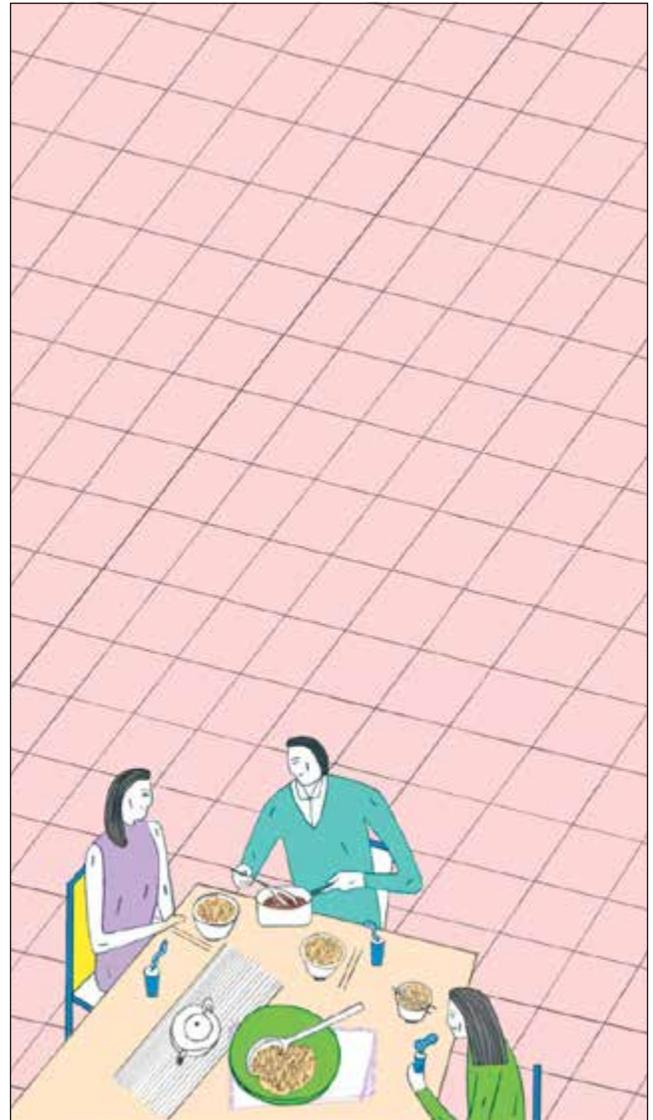
In the section »In conversation with ...« on pages 23–52, you can read interviews with Anthropocene researchers, representatives from sound studies, games and gender research and our new scholarship holders in the theme class Image Knowledge Gestaltung.

Enjoy reading Newsletter#8.

Best regards,



Claudia Lamas Cornejo  
Head of Science and Research Communication



Moli and Dahai with their cook, eating their evening meal. It is a typical Chinese dish with tomatoes and egg. The image is taken from the book »The Anthropocene Kitchen«, which highlights the issue of how to feed the planet in the future. The book uses the visual language of comics and the diverse possibilities that image/text narratives offer. The science comic is part of the base project »The Anthropocene Kitchen: A laboratory connecting home and world«. It portrays the kitchen across cultures and continents as a site with far-reaching consequences in the Anthropocene era. Illustration by Ruohan Wang, China chapter.

## The *LunchTalk* in the *Interdisciplinary Laboratory*



The *LunchTalk* in the *Interdisciplinary Laboratory* is held weekly from 12.30 to 2 p.m. on Tuesdays. External persons may attend on request. (Photo: Claudia Lamas Cornejo | BWG 2014)

The *LunchTalk* is a permanent fixture in the Excellence Cluster week at the *Interdisciplinary Laboratory*. On Tuesdays from 12.30 to 2 p.m., members of the Excellence Cluster or invited speakers give a talk on relevant topics. Excellence Cluster members then discuss the talk in order to identify points of reference, interfaces with or differences to their own work in the Cluster. The *LunchTalk* provides members with an opportunity to exchange ideas informally and discuss issues in their research in a protected internal space. Here they can float ideas, theses and findings that are not yet 100 per cent ready for publication and open them to debate amongst researchers in different disciplines. This is why, as a general rule, the *LunchTalk* is not open to non-members of the Cluster. If you are interested, please send an enquiry to [bwg.publicrelations@hu-berlin.de](mailto:bwg.publicrelations@hu-berlin.de). Suggestions for contributions by external speakers can also be sent to this address.

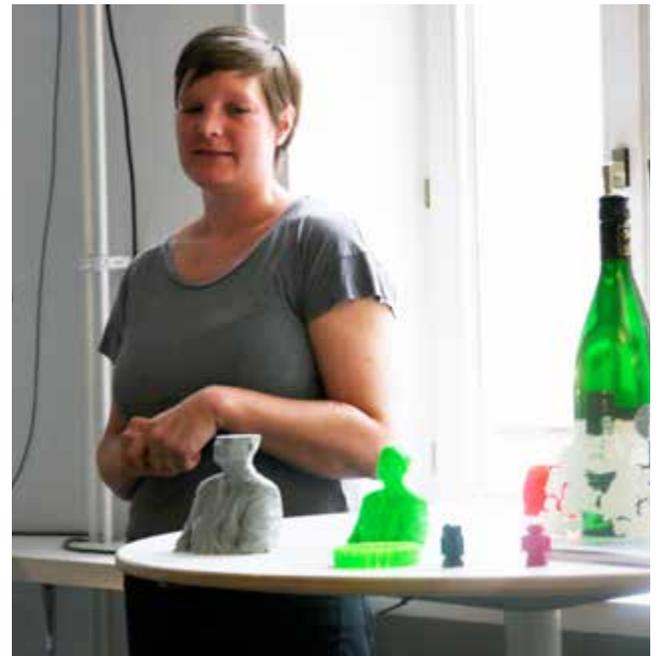


Claudia Lamas Cornejo  
Head of Public Relations & Fundraising

## LunchTalk Reports – August to October 2015

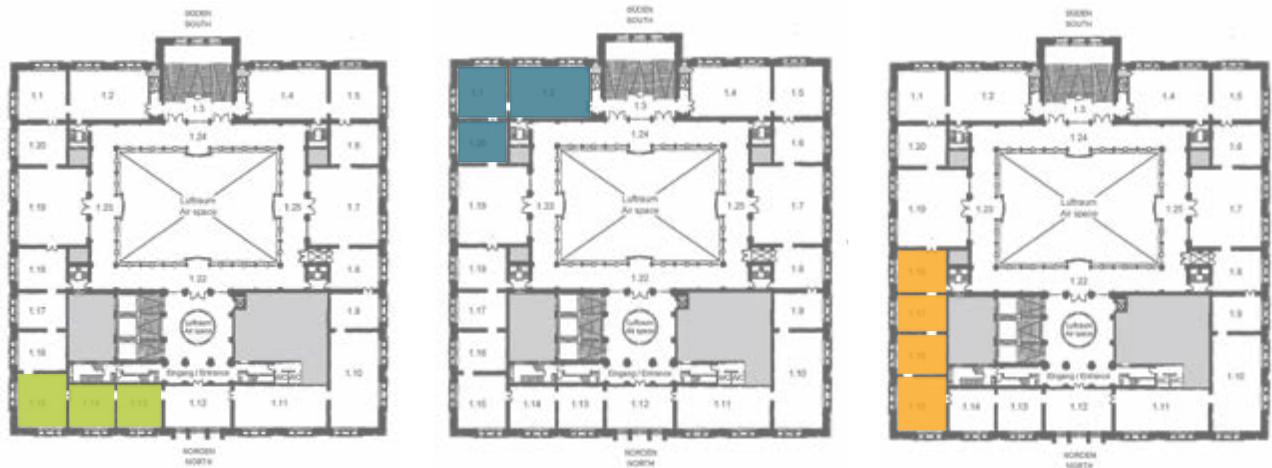


### LunchTalk Objects Tell Stories



From left to right: Anne-Marie Franz won the Kepler travel poster, produced by NASA to promote the findings made by its probe. The prize was sponsored by the IT department. Bettina Bock von Wülfigen presents her contribution: a 3D printout showing the brain of an Alzheimer's patient. Julia Blumenthal presents her tombola donation. Her object was also produced by a 3D printer (in this case a Delta Tower). She emphasised the unique value of and non-uniformity in every single printout. The last image shows Kathrin Hohmaier with her object contributions: 3D printouts of departing HU President Jan-Hendrik Olbertz. The objects were created during the Long Night of the Sciences 2014 (Photos: Daniela Sachse | BWG 2015).

## LunchTalk Report Cluster Exhibition 2016



The images show the floor plan of the Martin-Gropius-Bau. The highlighted exhibition areas indicate where the Cluster exhibition will appear. The first image shows the focus area »Nature's Technology«. The second image indicates where »Active Matter« will appear. The third image shows the area in which »Image Operations« will be located. Images: Martin-Gropius-Bau.

One year after the start of preparations for the Cluster exhibition and with just under a year to go before the opening, the exhibition team presented its work to date to the researchers at the Interdisciplinary Laboratory. They outlined both their thoughts on the exhibition's content – working title: »Gestalten« – and on the communications plan and the accompanying programme.

Nikola Doll used the floor plan of the Martin-Gropius-Bau to outline the concept for the exhibition. It will occupy eleven rooms in the east wing, covering an exhibition area of 1,000 square metres. Objects will be presented on its three key themes: »Nature's Technology«, »Active Matter« and »Image Operations«. A wide spectrum of objects from the past three centuries will illustrate the fundamental changes in the relationship between humankind, nature and technology. Industrialisation in the 19th century and digitalisation in the present day came and come hand in hand with new design approaches and materials, new spheres of action and experience. How they relate to each other is demonstrated by objects of very different origins.

In the course of work on the exhibition, different ways of involving the base projects have evolved: the aim is for the base projects to provide support and advice on the exhibition's content, but also to engender a practical collabora-

tion. This kind of practical collaboration materialised with the base projects »Epistemic Reverse Side«, »Image Guidance« and »Self-Moving Materials«, for instance.

»Seeing, hearing, playing, understanding« are the keywords for the exhibition's educational programme. It aims to arouse the curiosity of all age groups in the exhibition's content through direct and game-based (in the true sense of the word) communication. In collaboration with gamelab.berlin, a game is being developed to enable visitors to explore the exhibition as they choose and in very different ways. Conventional approaches to presenting the exhibition are also planned, including overview tours and themed tours, children's Sundays and tours with experts for school classes.

The plan is for events to be held alongside the objects in a central room inside the exhibition area. This is where an extensive accompanying programme, formed of different elements, will take place. Some of the Cluster's events will relocate from Sophienstraße to the Martin-Gropius-Bau for the duration of the exhibition.

New event concepts are planned to expand the spheres of experience in the exhibition. Formats such as the *Interdisciplinary Controversy*, debates on stage, science slams and science festivals will offer visitors insights into current research issues and create a forum for dialogue between visitors and researchers. Here collaboration with the base projects and cooperation partners is vital.

We welcome ideas and concepts for the accompanying programme – come and speak to us in person or send an email to [bwg.ausstellung@hu-berlin.de](mailto:bwg.ausstellung@hu-berlin.de).



*Katharina Lee Chichester*  
Research Associate



*Nikola Doll*  
Exhibition Curator



*Anne-Marie Franz*  
Assistant Exhibition Coordinator



*Frauke Stuhl*  
Exhibition Coordinator

## LunchTalk J. Peletier d. Mans & C. Clavius: Superposition of Geometrical Figures

*Jacques Peletier du Mans and Christophorus Clavius on the superposition of geometrical figures: a sixteenth-century debate on the ontological and epistemological status of geometrical objects and procedures.*

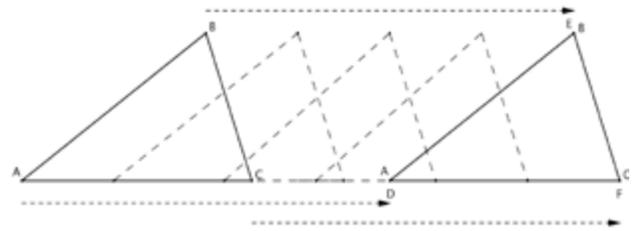
This talk aimed at presenting some of the epistemological and ontological elements of the debate which took place in the sixteenth century between the French mathematician Jacques Peletier du Mans (1517–1582) and the Jesuit professor of mathematics Christophorus Clavius (1538–1612), regarding the validity of superposition as a method to demonstrate the congruence and equality of geometrical figures, method used by Euclid in Props. I.4, I.8 and III.24 of the Elements.

In considering this quarrel, I wanted to show how the discourse presented by Peletier and Clavius on superposition contributed to the understanding of their respective positions regarding the status and the admissibility of motion in geometry. Indeed, superposition, which was introduced by Euclid in order to demonstrate the congruence of two figures and which requires to suppose that one of the figures, if superimposed on the other, coincides with it with respect to its dimension and configuration, can be understood as implying the local transport of a geometrical figure from one place to the other. This was not fully unproblematic at the time as the introduction of motion in geometry contradicted to a certain extent the ontological status philosophers traditionally conferred to geometrical objects after Plato and Aristotle. In the specific case of superposition, the question is not only related to the ontological status of geometrical objects, but also to the determination of the acceptable means of proof and construction in geometry, in connection with the distinction between the nature and function of theorems and problems in geometrical treatises.

### Peletier's rejection of superposition

Peletier's position on this issue, which he mainly presented in his 1557 commentary on the Elements, was to reject superposition by claiming that it corresponded to a mechanical, rather than to a geometrical, procedure. This rejection was motivated by its supposed empirical character, as it would require to prove the congruence of figures by imagining that one of two locally separate figures is moved towards the other and superimposed on it, revealing that it

perfectly coincides with it with respect to dimensions and configuration.



Triangle ABC represented as moving towards and being superposed on triangle DEF. (Graphic: Angela Axworthy)

The main argument put forward by Peletier to support his critical position towards superposition was that Euclid would not himself have considered it as a fully admissible procedure in geometry, as he would have otherwise appealed to it in many other occasions, starting with Props. I.2 and I.3, which require to construct a line equal to a given line at a given point and to cut off a line equal to a given line from one that is greater.

The comparison between these two propositions and Prop. I.4 led him to show that if it is admissible in geometry to suppose the motion of a line segment rotating around one of its extremities remained fixed – motion which produces a circle and which enables to place a line equal to a given line segment at another place from the centre of the produced circle –, it is, on the contrary, inadmissible to freely move a line or a figure through an undetermined spatial extension, as this type of motion is not rationally determinable and would not guarantee the identity of the moved figure, contrary to the motion entailed by the generation of the circle. Euclid's appeal to superposition in Prop. I.4, which is the very first theorem of the Elements, would be due to his will to start his geometrical teaching with a first theorem that appealed to the senses and from which the geometer would thereafter progressively reach more abstract demonstrations.

### The response of Clavius

In responding to Peletier's attack on superposition (in his 1589 commentary on the Elements), Clavius' first goal was

to defend the integrity and legitimacy of Euclid's geometry, within which Prop. I.4, and the mode of demonstration it appeals to, plays a fundamental role. Clavius's main argument against Peletier was to show that the French mathematician did not understand the manner in which geometers, and Euclid most of all, conceived and made use of superposition in geometry. As he said it then, geometers »do not want superposition to be made in fact (this would certainly be mechanical), but only made in thought and in the mind, which is the duty of the reason and of the intellect«. To Clavius, Peletier confused theorems and problems, as Props. I.2 and I.3 belong to problems and Prop. I.4, to theorems. Superposition, such as used and conceived in Prop. I.4, could not be held as mechanical because, as it is a theorem, it does not require to construct any figure or perform any action, but only to observe and demonstrate the essential properties and relations of a general class of objects. As such, it would not even require that the considered objects or class of objects exist. In prop. I.4, superposition would only represent a means to express the relation of congruence between the angles and the sides of two triangles which are known to have one angle and the two adjacent sides equal, relation which is rationally founded on some of the axiomatic principles which govern Euclid's deductive chain of arguments.

Clavius however did not deny the possibility to imaginarily represent the motion and the superposition of a figure onto another. But, to him, this imagination would not play any role (other than didactic or heuristic) in the actual demonstration of the theorem, contrary to the motion involved in the constructions which are required to be done and demonstrated in the frame of problems.

Thus, the main object of disagreement between Peletier and Clavius was their interpretation of the procedure of superposition. While Peletier interpreted it as an effective procedure, in the manner of a construction, Clavius excluded it from effective motions of figures and only admitted its imaginary conception as a didactic device to help the visualisation of the relations of congruence and equality deduced from the Common Notions.

Although Peletier's rejection of superposition holds a relatively marginal status in the history of mathematics, the discussion which was raised between him and Clavius on this issue shows that the manner in which this demonstration procedure was introduced by Euclid in the Elements, as well as the way it had been read and transmitted up to the sixteenth century, was not deprived of ambiguity and that superposition still required at the time to be legitimated as a geometrical means of demonstration of the relation of figures.

### Angela Axworthy

Postdoctoral research fellow, Max Planck Institute for the History of Science, Berlin

## Review of Events

### Shooting the Film *Leuchtende Illusion – Die Bauhaus-Leuchte*



The film set in the office of light designer Jan Dinnebier and in the home of lamp owner Lisette Nichtweiß. Photos: Julia Meer.

How does an object become a symbol? And which objects lend themselves to being the bearers of symbols? The Bauhaus lamp is an example that shows how meanings that have little to do with the object itself are ascribed to an artefact. The Bauhaus lamp embodies the idea of Bauhaus design: modern, functional and geared towards industrial production. Yet it is not all of those things. It is the result of a silversmith's meticulous handwork and perpetuates the shape of the paraffin lamp, whereas other lamps of the same era were already making use of the new opportunities provided by electric light. Although the cable is in fact flexible, it is frozen in the lamp's shaft. The bulb is positioned absolutely vertically, as if to recall a flame, making it scarcely usable as a desk lamp.

We were invited to create a concept for a contribution to the exhibition »Bauhaus – Designing a new world« and to produce it. We are currently shooting a film on this »Bauhaus Paradox«, which will be on show from 25 September 2015 in the Vitra Design Museum in Weil am Rhein. (It will also be shown in the Bundeskunsthalle in Bonn from April 2016.) We interviewed six experts, each with their own perspective on the lamp. In Bremen, we had the chance to film the assembly of the lamps for a re-edition (it's true: even today, handwork is still required!) and to speak to the Director of the Wagenfeld Foundation. It goes without saying that she has a Bauhaus lamp on her desk, and apparently it performs its duties splendidly. Beate Manske – »the« expert on Wagenfeld – agrees with this view, while light designer Jan Dinnebier demonstrates on film how difficult it is to read a sheet of paper in the beam of the lamp

without hitting one's head against the shade or having to squint because of the glare. Much to the film crew's delight, Lisette Nichtweiß speaks to the point right from the outset (she was the first female press officer of the city of Darmstadt) about the lamp, which she purchased in the furniture store »Funktion« in 1992, and her relationship to it. We were pleased to hear her subjectivise the lamp with comments such as »it [the lamp] likes old books; it feels at home in my house.« On the third day of shooting, we will speak with Wolfgang Ullrich about the lamp as a consumer object – and hopefully by then we will have learnt the art of formulating questions in such a way that the answers make sense on their own (the question sequences will not be included in the film). We are delighted to have this opportunity to make part of our research accessible to a wider audience – even if some members of this audience will probably be annoyed that we have questioned the lamp's image.



Julia Meer  
Base project »Pictograms«

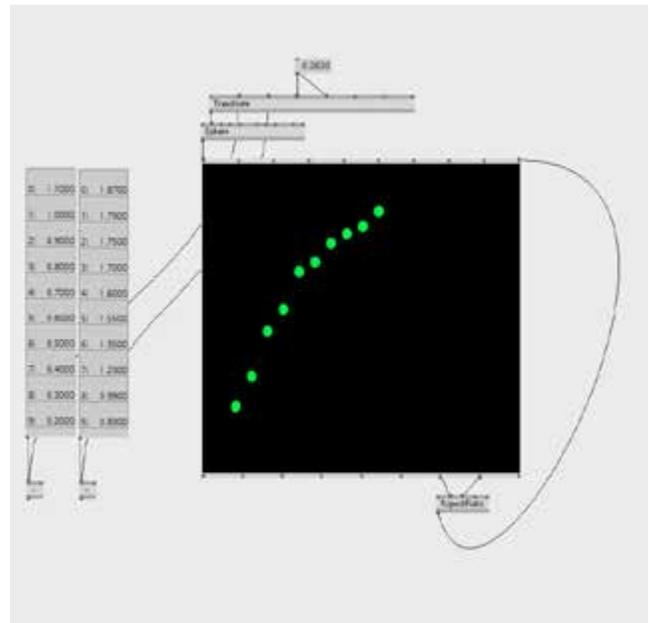


Philipp Oswald  
Associated Investigator

## Report on the »Open Design« Master's Programme The first semester at the Universidad de Buenos Aires



Measuring speed on a sloping surface. Photo: Christian Kassung | Image Knowledge Gestaltung 2015.



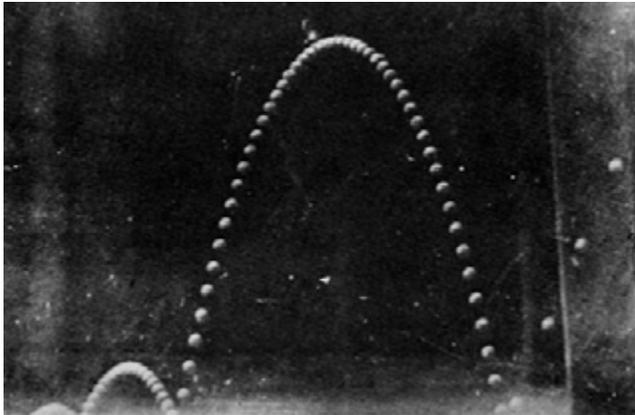
Screenshot of a data visualisation in VVVV. Photo: Friedrich Schmidgall | Image Knowledge Gestaltung 2015.

*Christian Kassung, Principal Investigator in the base project »Analog Storage Media«, is one of the lecturers on the recently launched master's programme »Open Design«. In his contribution below, he reports on the first week of teaching in Buenos Aires, where the programme launched with its first cohort of students.*

Under the umbrella theme of »Thresholds«, Friedrich Schmidgall, José Ignacio (Nacho) Alvarez-Hamelin and I taught the first two courses on the recently established joint master's programme between the Humboldt-Universität zu Berlin and the Universidad de Buenos Aires. The two courses dovetail closely. As a result, we were able to alternate between introducing our students – a good twenty in number and from right across South America and Europe – to the theory and history of measurement on the one hand and the practice of programming sensors and pixels on the other. This fundamental idea met the students' expectations perfectly: they were hoping to find new inspiration for their own professional practice as architects, theatre professionals, industrial or fashion designers. They

encountered the historical dimension of how we handle numbers in our daily lives; they came up against the theoretical difficulty of defining and understanding what numbers actually are; they got to grips with the not insignificant abstractions performed by Arduino programmes using the VVVV development environment. All these encounters were both challenges and opportunities for them. Recognising the limits of one's own discipline and knowing where these can be overcome and where they cannot – this is one of the central objectives of »Open Design«.

We were able to demonstrate this particularly vividly with the example of Galileo's famous Leaning Tower of Pisa experiment. With this experiment, Galileo wanted to find out the laws of nature that determine the free fall of bodies. Historically, we may not be sure whether Galileo ever climbed the tower to prove to interested residents of his city that the speed of falling objects is independent of their mass. However, it is not disputed that it was exceptionally difficult to be able to prove his ideas as falling objects were difficult to capture with the media of Gali-



Historical image of a chronophotograph. Source: <http://www.zeno.org/nid/20001883798>.

leo's time because of their very speed. Galileo had the ingenious idea of slowing their fall by making the surface slope. This in turn required an elaborate geometric proof. In other words, there is hardly any other experiment that lends itself as well as the sloping surface to grasping the intermeshing of numbers, diagrams and practices.

We performed the measurements themselves using two ultrasound sensors. The measurement values were processed by an Arduino and evaluated and visualised using VVVV; the two seminars were therefore closely linked for this experiment. After the students had patiently measured, calculated and drawn, the first result they produced was the curve that Thomas Pynchon adopted as the leitmotif for his masterpiece »Gravity's Rainbow«. In the following session, we repeated the process by which this finding was reached, but in the reverse direction. Using the latest technologies, the students recorded movement processes in their daily lives in order to generate chronoscopic images in the tradition of Étienne-Jules Mareys and Ernst Machs. These images were then evaluated mathematically and translated back into concrete numbers. One of these chronoscopic images showed that the daughter of one of the students reached a terminal velocity of one kilometre per hour on a slide. This demonstrated to us in very clear terms how closely images and numbers are intertwined. The students on the »Open Design« master's programme themselves must now take up the task of drawing fruitful inspiration from this finding and others for their own design work. The follow-on course for the first semester starts in two weeks.



Christian Kassung  
Principal Investigator

## Workshop Report *Experts in Experimentation*



Regine Hengge explains the types of experimentation in microbiology. Photo: Julia Blumenthal | Image Knowledge Gestaltung 2015

The Experimental Zone and its changing experimental settings have made the concept of experimentation itself a key issue. What is an experiment actually? How do experiments in the natural sciences differ from those in design disciplines and the humanities? Where is the boundary between observation and experimentation located? These and many other questions were examined by participants at the workshop »Experts in Experimentation«, organised by the project »Architectures of Knowledge«, on Monday 31 August. Robert Gaschler, Jörg Gleiter, Regine Hengge, John Nyakatura, Hans-Jörg Rheinberger and Wolfgang Schäffner discussed the concept of experimentation from different disciplinary perspectives with the Experimental Zone team. The discussion showed that experimentation is of great importance in very different fields, but the form it takes in these disciplines varies widely. This was helpful for the Experimental Zone because all the experimental settings have to work with variables that are controllable to varying degrees and at the same time must produce reliable results that can be interpreted and applied. Experiments can be based on hypotheses, but equally they can be exploratory or simulation-based. Thought experiments rank alongside observation experiments; the objective of producing knowledge is amalgamated with the limits on what can be measured. After a short presentation of the Experimental Zone, the workshop began with contributions from the invited experts, which provided stimulus for the lively discussion which followed. Molecular and microbiologist Regine Hengge started by drawing a dis-

inction between three different types of experiments: the majority of experiments in biology belong to the classic hypothesis-driven experiments, which could be described as »questions asked of nature«. In such experiments, a hypothesis is formulated as precisely as possible and experimentally tested; ideally, this hypothesis should be clearly verifiable or disproved. Alongside this are non-hypothesis-driven experiments that are initial attempts to open up an uncharted field of knowledge. The objective here is to gather the first data that might serve as the basis for formulating a hypothesis. Such data can be gathered on a small scale through classic molecular biology processes, but it can also be generated and analysed with the high throughput of big data. The third category consists of mathematical simulations and »in silico experiments«. However, in all these forms of experimentation, biology focuses primarily on practice and methodology in both teaching and research, and it does not have a specific theory of experimentation itself.

Responding to these categories, Wolfgang Schäffner examined the experimental object in the context of the Interdisciplinary Laboratory and the Experimental Zone. The question of what interdisciplinarity itself means emerges as a question whose object cannot be clearly defined at the outset and must first be identified per se.

Schäffner argued that this means that the Experimental Zone as an instrument must first be adjusted until the object becomes clear. This calls for a dynamic approach that must test the physical layout both with respect to theoretical and historical perspectives and in terms of modern methodologies for designing space. However, the very adjustment of this instrument could produce new perspectives from which new questions and models might emerge in turn.

John Nyakatura emphasised that biological morphology is primarily a descriptive discipline. But experimentation does take place in this field, in particular in investigations into the functioning of morphological structures. Here artificial situations are created to enable function to be studied using devices under controllable conditions. The fundamental rules of experimentation must be followed; for example, the experimental materials used in a series of experiments must be homogeneous. How an animal's locomotor system functions can be observed using an X-ray camera as it runs along an enclosed track, for instance. Often hypotheses are not tested in such experimental observation situations; instead the aim is to describe or compare. Experimental observation situations also have the advantage that aspects of function can be quantified. In the context of experiments, quantification can be seen as an attempt to arrive at a less qualitative description – and ultimately a less subjective one. As a result, Nyakatura noted, experimentation in his discipline is primarily a question of generating a situation that can be observed accurately.

In psychology, the key issue is the correct way to experiment, explained Robert Gaschler. Psychology is very much influenced by the natural sciences, in particular physics, and attempts to arrive at reliable conclusions stochastically. Often the objective is to exclude confounding variables as far as possible. Gaschler noted that there is greater freedom in the analysis and interpretation of the data, which can lead to biases and misinterpretations. New experiments are often designed based on the theories to be tested, but in terms of research practice, they are also guided by what has not previously been studied with the particular approach and is therefore considered to be new. Experimentation in this sense, Gaschler argued, is more of a methodologically oriented craft tradition and less concerned with contemplating the concept of experimentation itself.

Jörg Gleiter stressed the importance of the relationship between experiment and theory in architectural theory. He



Hans-Jörg Rheinberger raised the question of the significance of the sphere of action and representation in the Experimental Zone. Photo: Julia Blumenthal | Image Knowledge Gestaltung 2015

argued that experiments are fundamental to knowledge processes and the formulation of theories. In his view, it is primarily thought experiments that constitute an important form of experimentation in architecture. One of the central concerns for architecture as a symbolic form is to assimilate constantly changing cultural logics, logics that must be incorporated in its conceptual model. Every example of creative practice works with predetermined models and cannot simply be attributed to genuine creativity. The transfer of architectural practice from the building site to the drawing board that Alberti initiated has also been mirrored in experimentation. That which can be thought and planned, Gleiter argued, always depends on the chosen scale. The experimental model thereby iteratively expands the sphere of possibility without having to create it first.

Hans-Jörg Rheinberger explored the concept of research from the perspective of the objective of research: attempting to find out that which was previously unknown. A further question follows from this: what was previously unknown and what does the scientist want to know? Here Rheinberger made a distinction between two forms of non-knowledge: firstly »specified ignorance« where the researcher knows precisely what is unknown and secondly the process of clarifying what is actually not known. In the second category in particular, time plays an important role as such exploratory processes may be protracted. Hence there are two forms of experiments: testing experiments and exploring experiments. They are not completely sep-

arate; rather, they are the two extremes of a scale. Rheinberger stressed that, when describing scientific experiments, it is not the sphere of action in the experiment that is fundamental, but the oft-neglected sphere of representation in which the results are presented and visualised.

The following discussion examined the intersections between the different concepts of experimentation and related these to issues in the Cluster's Experimental Zone. Here it was emphasised that there are very different forms of interdisciplinarity, which can, in certain circumstances, produce different questions and results. The debate also considered whether a control group should be set up in order to compare disciplinary and interdisciplinary work. This led into a discussion on the extent to which the double role that the Experimental Zone team plays as participant and observer is helpful or a hindrance. It was emphasised that, in addition to examining people in the Experimental Zone, analysing information and material flows in Latour's sense of the term could be decisive. The discussion also showed that the Experimental Zone itself is to be viewed not so much as a separate experiment but rather as a tool with which to examine different questions. This happens in the individual experimental settings. Which of these questions is to take precedence or is particularly interesting remains difficult to decide given the heterogeneous possibilities. Quite independent of the individual experimental settings, examining how work in the Experimental Zone evolves is a very interesting area of study. The challenge remains to use the Experimental Zone as a tool not just to answer questions but also to generate them and in this way to identify the right priorities. The discussion provided valuable input for designing and refining experiments in the Experimental Zone. It even generated some concrete ideas for future settings. The participants decided to organise a follow-up workshop in the near future and to invite further experts.

The Experimental Zone team were very pleased with the discussions and results, which they are now starting to evaluate. They look forward to the follow-up workshop.



*Christian Stein*

Base projects »Architectures of Knowledges«,  
»Gesundheit (Health) & Gestaltung«

## Report *Entomophagy*



Andrew Müller giving his talk at *Insecta 2015* in Magdeburg to an audience of experts from business and research. Photo: Marc Schleunitz.



Bennet Frentzel from *insectivity.de* talking to visitors during the insect tasting session at the Federal Ministry of Food and Agriculture's 2015 open day. Photo: BMEL/Peter Kossok

The hot topic in the late summer for some parts of the base project »The Anthropocene Kitchen« was entomophagy – in other words, human consumption of insects. Members of the base project had the chance to give talks on this issue at the Federal Ministry of Food and Agriculture's open day for 2015 at the end of August. The sociologist Andrew Müller (Humboldt-Universität zu Berlin), the start-up entrepreneur Bennet Frentzel (*insectivity.de*) and Marc Schleunitz (base project »The Anthropocene Kitchen«) took to the stage in the charming inner courtyard of the ministry on both days of the event. According to the organisers, alongside the short talks, one of the biggest crowd-pullers in recent years was the opportunity to taste freshly prepared insects. Visitors could sample grasshoppers fried with garlic and rosemary and roasted crickets, all produced with the assistance of elements from Karl W. Grosse's laboratory kitchen. The base project was especially pleased with the discussions and conversations that followed – the visitors asked many important and pertinent questions on the issue and showed great interest. The event was clearly oriented towards consumers. Other food-related topics presented included the use of soil, avoiding waste and healthy eating.

In order to make eating insects socially acceptable, consumers need to be much better informed, but scientific and commercial advances are also required. *Insecta 2015*

in Magdeburg gave representatives from business and research ample opportunity to examine the issue. The federal symposium attracted guests from across Europe and acted as a discussion forum for using insects as animal feed and as a food source for humans.

Edible insects are currently classified as so-called »novel foods« in the European Union. Up until now, an EU directive has permitted the sale of whole insects, i.e. non-processed. Under this directive, insects are produced for human consumption primarily in the Netherlands, Belgium and France, and authorised for sale by the competent national authorities in these countries. Against this backdrop, Wolfgang Trunk, a representative from the European Commission, reported on the current state of European legislation. A new regulation is planned for October. It is to be expected that the previous legal wording will be made more precise and that the successful market launch of insect products may be delayed or that there may be obstacles to the continued use of existing production methods, at least in the short term. The new act provides for detailed risk assessment dossiers on each individual product. How the authorisation processes will work in practice and how long they will take remains to be seen. All those involved are convinced that testing food products is essential to ensure they are harmless, but entrepreneurs already active on the market could face risks, including the loss of income,

as a result of the new legislation. The stakeholders believe that the use of insects as feed for farm animals should be authorised as soon as possible. Parts of the current legislation, which stems from the times of the BSE crisis, currently prevent their use on a broad scale. Specifically, the question is what the insects were fed before they themselves are used as animal feed (for example, in aquacultures in salmon farms). It is currently prohibited to use catering waste to breed insects for feed. The prevailing view is that insects must be produced with alternative feed (largely free from soya products); otherwise the environmental potential that insects are said to represent would remain untapped. In such a scenario, insects might end up competing with humans for food, and this must be avoided. Alongside this legal information, the event also examined the most sustainable methods for producing insects for human consumption. Scientific institutes reported on systems that enable energy-self-sufficient insect breeding, for instance, by recycling waste or waste heat. Andrew Müller, who also attended this event, critically underscored one point in his talk: the environmental potential in insects can only be exploited if we ensure that the value production chain for insect breeding and distribution primarily serves environmental and social progress – instead of purely commercial advancement. Otherwise insect breeding threatens to become yet another variant of traditional meat production, and a promising opportunity to establish a product that is sustainable at all levels on the market would be wasted. In response to the great crowds at the conference, the many discussions and the dynamism surrounding entomophagy in Europe, another »Insecta« is planned. The importance of such a conference is a clear indication that the many hurdles on different levels can only be overcome in a direct interdisciplinary or transdisciplinary debate.



Marc Schleunitz  
Base project »The Anthropocene Kitchen«

## Report *Analog Storage Media in Namibia*



Mobile measurement device: recording the impulse response from an exploding balloon using an audiometer at rock painting sites.

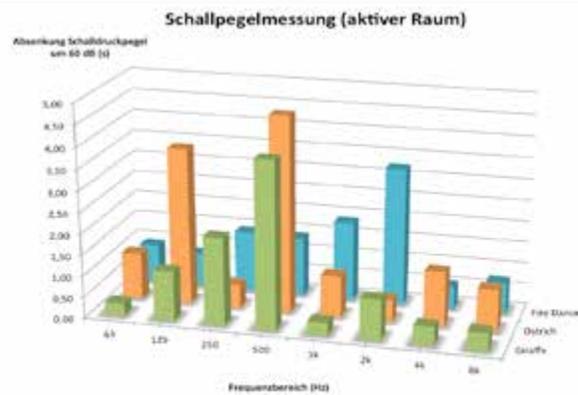
(Photo: Christian Kassung.)

This year, the third »International Summer School 2015 in Culture and Computer Science« took place in Uis/Namibia, at the edge of the Brandberg Massif. Uis, a former mining settlement, can only be reached via sandy tracks, so after a four-hour bus journey from Windhoek, we were initially worried that the fine sand might get the better of our computers. It is a little ironic that all our computers come from Silicon Valley and must now go into battle with the quartz sand that threatens to enter into every crack.

But it is due to precisely this extremely dry climate that the so-called rock art of the San people has been preserved for millennia. This rock art, which was both painted and engraved, is the key storage and transmission medium for the San. In certain places, these paintings were not produced as finished works; rather, each new group that arrived in the area added relevant information. For example, a scouting party of five hunters could be depicted to inform their descendant families that a sixth person perished while searching for new hunting grounds. If the group moved on because they did not find enough food

in that particular area, they indicated in their paintings the next landmark that they would try to reach. Based on this information, other groups could decide whether to stay or move on themselves. In a similar way, animal paintings indicated food resources. This enabled the members of one group to communicate with each other and with members of different groups. Of course, there were also paintings that served instead to stabilise cultural practices. For instance, ritual performances are portrayed. These were probably directly connected to body techniques such as trance dancing.

What does rock art have to do with the analogue storage media project? Participants at the summer school included students from the Polytechnic of Namibia (Professor Muyingi) and students from the University of Applied Sciences in Berlin (Professor Brovkov, Professor Sieck), Sebastian Schwesinger from the Cluster, and Nikita Hock and Professor Kassung from the Department of Cultural History and Theory. Our main research question was this: what were the criteria that the San used to select the locations for



Comparison of the measurement results for different rock painting sites. Spaces with significant reverberation effects are called »active spaces«. Passive spaces, by contrast, have no particular acoustic signature. (Images: Christian Kassung, Sebastian Schwesinger)

their paintings? Or as a hypothesis: the acoustic properties of a particular site were one of the factors in their decision. To gather empirical evidence to support this hypothesis, our team conducted a whole series of experiments. Their aim was to isolate the acoustic properties of these sites and to interpret them in the context of the visual representations and existing ethnological and archaeological analyses. These measurements were performed at the Spitzkoppe and the Tsisab Ravine in the Brandberg Massif.

RT60 measurements were conducted using an XL2 acoustic analyser and exploding balloons. From rocky overhangs that protect the rock art beneath them from weathering, the sound waves from the explosion extended far into the rocky landscapes in some cases. The measurement device recorded how the sound pressure level fell. The diagrams show the time taken for the volume to fall by 60 dB for different frequencies. They show a very clear distinction between two different types of sites. At the two less acoustically active sites (White Lady and Bushmen's Paradise), the sound disappears after roughly half a second. There are no particular frequency ranges in which significant reverberation effects can be observed. By contrast, the Giraffe, Ostrich and Fire Dance sites have very different acoustic properties. Here the diagrams show clear reverberation peaks, at both lower frequencies (Giraffe and Ostrich) and at higher frequencies of around 2 kHz (Fire Dance). If these differences in the acoustic properties of the different rock art sites can be very clearly identified, establishing a link to the iconographic scheme will require further discussions and investigations.



Screenshot of the mobile app. Description of the acoustic interaction and explanation of the site's audible properties. (Image: Programmers and students at the HTW Berlin and the Polytechnic of Namibia)

Our work at the rock art sites was an opportunity to test methods and instruments for taking acoustic measurements that can be applied in other projects. In collaboration with classical archaeologists, these projects will explore similar questions, examining the remains and reconstructions of ancient plazas. Our investigations were able to establish the significance of acoustic properties in the functional design of sociocultural spaces for the past San culture in Namibia in a short week at the summer school. This led us to conclude that oral cultures in particular have a nuanced sensibility for the acoustics of their media practices, which are significantly influenced by the natural infrastructure. To present our findings to tourists and interested local people, we integrated our results in a mobile app that enables visitors at the sites to interact acoustically with the stone monuments and understand them in a new way.



*Christian Kassung*  
Principal Investigator



*Sebastian Schwesinger*  
Base project »Analog Storage Media«

## Photo Gallery *Science Meets Comics*



»Bee sting cake« baked by Sophie Lokatis, the protagonist in the German chapter.



Scribble by Samuel Jaramillo, Banaba chapter, Micronesia.



The start of the symposium with Reinhold Leinfelder and Jaqueline Berndt.



Scribble by Maki Shimizu, Japan chapter.



Maki Shimizu drawing Reinhold Leinfelder at the exhibition »Communicating Science through Comics«, which ran in parallel to the symposium in project room C10.



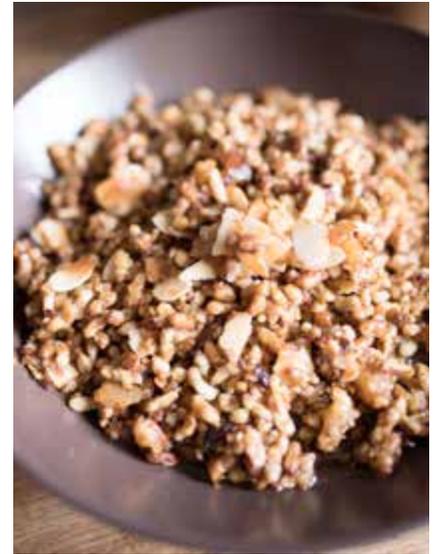
The artists from the Anthropocene Kitchen discussing the design of the last chapter on the future of food.



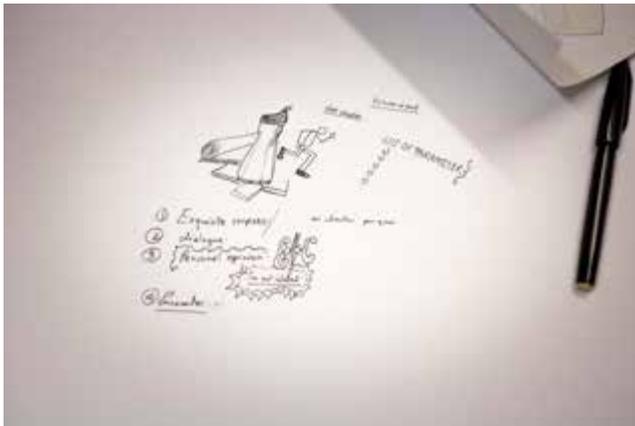
Karl W. Grosse and Stephan Barthel cooking a recipe by the nutritional scientist Toni Meier for a *LunchTalk*.



Reinhold Leinfelder tasting the »bee sting cake«.



Candied drone bee larvae as dessert for the *LunchTalk*.



Scribble by Sarnath Banerjee, India chapter.



The artists and workshop organisers on a historic tour of the city's metabolism, led by Stephan Barthel.



From left to right: Ulrich Scheel, Anne Schmidt, Ruohan Wang, Stephan Barthel, Joëlle Ebongue, Daniela Harsan, Alexandra Hamann, Sophie Goldstein, Samuel Jaramillo, Maki Shimizu, Martin Ernstsen, José Aguiar, Marc Schleunitz, Zineb Benjelloun, Sarnath Banerjee.



Stephan Barthel comparing historical records with the situation today.  
Photos: Jens Kirstein ([www.jfk-photography.de](http://www.jfk-photography.de))

## In conversation with ...

### Reinhold Leinfelder & Alexandra Hamann

#### *Science Meets Comics*

A few years ago, the geobiologist Reinhold Leinfelder and the designer Alexandra Hamann took an entirely new path to communicating research results and issues when they started to develop science comics. CZ# met up with both of them in preparation for the workshop »Science meets Comics« (5 to 9 October 2015).

*Claudia Lamas Cornejo: Professor Leinfelder, what exactly does an Anthropocene researcher do?*

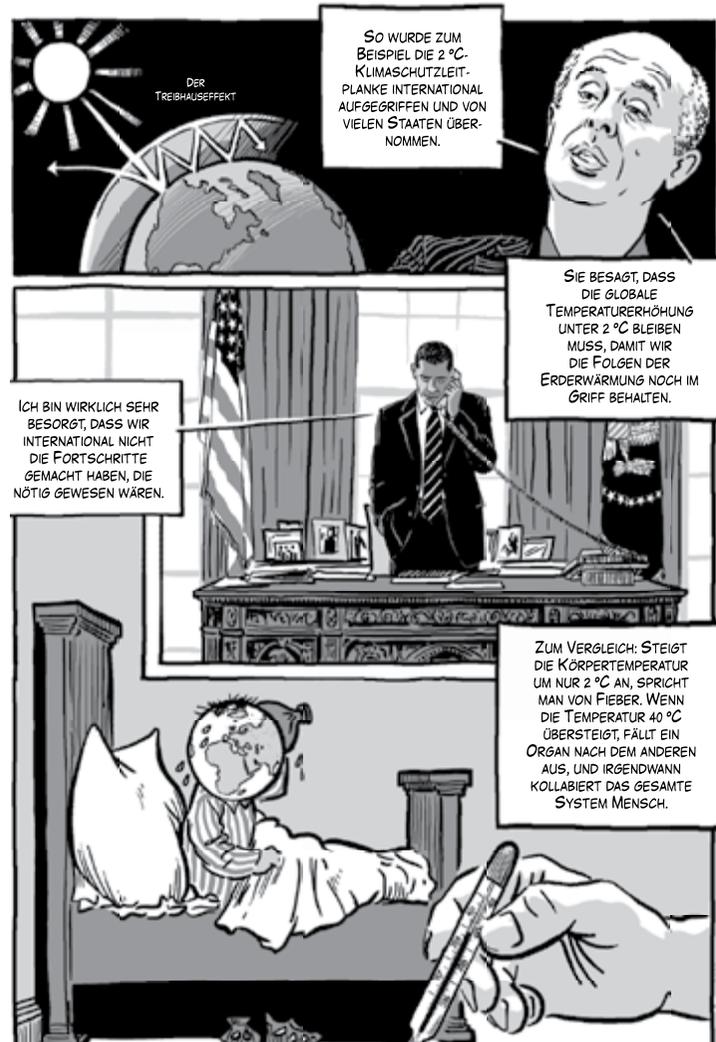
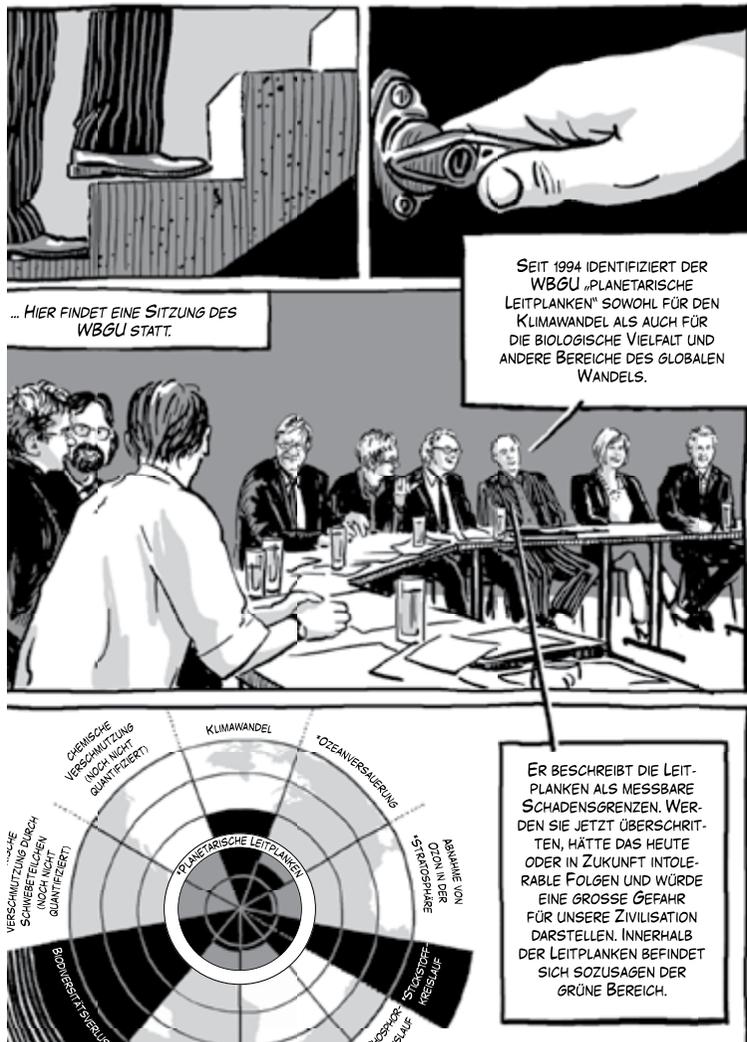
Reinhold Leinfelder: »The Anthropocene« refers to a new era on Earth created by mankind. But the term does not just refer to a new geological era – there is also a cultural aspect to the Anthropocene: nature, culture and technology can no longer be seen as separate. Instead, researchers must regard them as elements that are inextricably linked. The project we are working on in the Excellence Cluster Image Knowledge Gestaltung is called »The Anthropocene Kitchen«. We are looking at resource flows connected with food and our future food security, and that also means looking at social conditions and cultural sensitivities. Food is an issue that concerns all of us. It is an example that illustrates the complexity of the Anthropocene particularly well. We take a local peek inside the kitchens of real, individual people. What we see is a global connectedness that has only existed on this scale since the start of the Anthropocene era. In crude terms, every individual holds the control lever for globalisation firmly in his or her own hand because he or she decides each day what to eat, whether it is seasonal, frozen or freshly prepared. Their life circumstances play an important role because it makes a difference whether you live in a family, a houseshare or alone, and what kind of cooking equipment you use – a whole set of high-tech devices or just a microwave. All this is part of our project, and thinking about how this might work in the future is a particular challenge.

*Claudia Lamas Cornejo: Alexandra Hamann, you are a designer and come from a completely different discipline to Reinhold Leinfelder. What do you find interesting about the topic and how did you end up working together?*

Alexandra Hamann: My background is graphic design and issues in the natural sciences. I have done a lot of work for textbook publishers and had seen that it is rare for these issues to be communicated in a way that is exciting as the topics actually are in their own right. Just think of the global dimension of what you yourself do in the kitchen. To a certain extent, you determine whether fields are farmed, whether rainforests are chopped down, whether genetic engineering is used and much more. Many years ago I started volunteering in the Museum für Naturkunde and came across old images and manuscripts by Bloch and Humboldt. In their day, science was communicated from a completely different aesthetic perspective. As photography did not exist then, researchers attempted to capture their experiences and discoveries with words in images; they also commissioned drawings and charts from artists. Of course, some of them sketched themselves as well. I then asked myself what creative form today could be as fascinating, especially for a young audience, and thought of comics, or perhaps I should say »text/image stories« because the issues are not actually comic. Reinhold Leinfelder was the Director General of the Museum für Naturkunde at the time, and I managed to persuade him to adopt these kinds of text/image stories for our work on biodiversity. That was a kind of test run for the comic produced by the German Advisory Council on Global Change (WBGU).

*Claudia Lamas Cornejo: What was the approach and objective of the WBGU comic?*

Reinhold Leinfelder: I was a member of the WBGU for five years. The council examines environmental issues on a global scale and drafts reports advising on policy. One of these reports also attracted quite a lot of attention outside politics: a »Social Contract for a Great Transformation«. The report's fundamental message is that politics alone cannot transform our society into one that operates sustainably; to achieve this, we need every one of us. Alexandra Hamann suggested that we popularise the report in the form of a comic. She had waded her way through the document together with a colleague and wanted the nine members of the council to explain the ideas to her in



The comic produced by the German Advisory Council on Global Change (WBGU) »Die Große Transformation. Klima – Kriegen wir die Kurve?« (The Great Transformation. Climate – Can We Beat the Heat?), extract from the chapter »Why we have to change« featuring Hans-Joachim Schellnhuber, Director of the Potsdam Institute for Climate Impact Research, drawn by Studio Nippoldt. © Verlagshaus Jacoby & Stuart 2013.

the book. At first I was a bit taken aback and thought that the suggestion was perhaps a bit too bold. But I still put the question to my fellow members on the council. A few members liked the idea right from the start; the others had to be convinced. But in the end, everyone was really excited about the plan. We put almost as much work into reading and checking the comic as we did in the whole report (laughs). Together Alexandra Hamann and Claudia Zea-Schmidt took the ideas put forward in the report and broke them down to the length of speech balloons, conducted interviews with the members of the advisory council and then wrote the storyboards. The comic has now appeared in several languages, which we are really pleased about.

*Claudia Lamas Cornejo: No doubt there was also some criticism of such an unusual communication form. What critical comments gave you the most cause for thought?*

Reinhold Leinfelder: We expected a certain amount of criticism, in particular from climate change deniers, along the lines of »Now they had to create a comic too«, and of course that is exactly what happened. But interestingly, the book was discussed in many feature sections in newspapers and on science websites, and these discussions did not criticise the format itself; instead, they were very much in favour and praised it. There were, however, a few who said: »It's not comic at all ...« This is probably based on a misunderstanding of the term »comic«. No doubt this is largely due to the absence of a widespread comic culture in Germany, which is quite different to their standing in the US, France, Belgium or Japan. Comics do not have to be comic. Some people today prefer to call them »graphic novels« to avoid this misunderstanding. For us, a comic is a medium like a book or a film. That means it is first and foremost a container in which you can place different content.

*Claudia Lamas Cornejo: In October you are organising a workshop as part of your Anthropocene Kitchen Project. What will happen there exactly?*

Reinhold Leinfelder: Generally speaking, our research here in the Cluster is concerned with food in the future. In order to feed a growing population, we need to think about how we will do so today because in just 30 years or so there will be an additional two billion people on our planet. Right now, we are doing a stocktake of the current situation. We asked ten people from different countries about their eating habits, and this led to further questions about their environment, and dialogues began. These dialogues showed

that there was a need for extensive scientific research. We will publish all of this – the personal dialogues and the cultural and scientific foundation of food – in the form of a comic, with artists from the different countries making up a further participatory element. In our final chapter we want to develop our vision of the future together. This was the reason for organising the workshop »Science meets Comics«. The first two days are public and can be seen as a symposium. We have invited comic theorists and practitioners who have experience in scientific non-fiction comics or explore this issue in their research. And, of course, we also have nutritional scientists on board, and we want to discuss the future of food with them.

The remaining three days, however, are reserved for our illustrators and our team. Together we will try to amalgamate the experiences and findings from the individual countries with our vision of the future and to identify possible paths to a sustainable global food supply. We will present the result as a final chapter, which will be produced by all the artists together.

*Claudia Lamas Cornejo: How did you choose the ten countries and is it really possible to condense the whole world's food culture down to this number?*

Alexandra Hamann: No, I don't think so. But we had to take a practical limit as a guide. We want to publish our results as a book that will appear just like any other book in bookshops, and for this reason alone, we have to limit its scope. Of course, the issue could be expanded infinitely. We have attempted to pick out the main issues and to incorporate every continent.

*Claudia Lamas Cornejo: What are the main issues? Which different factors do these ten countries cover?*

Alexandra Hamann: There is one key guiding theme: phosphorus. In the form of phosphate, phosphorus is one of the main components in fertilisers, making it an extremely important resource. Life is not possible without phosphorus. How long supplies of phosphorus will last is disputed, but we should handle this resource more carefully in any case. Phosphorus was therefore one of the main criteria that we used to select the countries. They include Morocco, where the majority of phosphate is mined, and Banaba Island, where the removal of entire layers of earth has resulted in radical cultural changes. Other issues include meat consumption, sugar consumption, fishing, plastic packaging, as well as food as a lifestyle and modern food trends.



Extract from the comic anthology »Anthropozän – 30 Meilensteine auf dem Weg in ein neues Erdzeitalter« (Anthropocene Milestones: Illustrating the Path to the Age of Humans): M.I.P.A.S., Paul J. Crutzen as Super Paul, drawn by Martyna Zalalyte. © Deutsches Museum 2014

Reinhold Leinfelder: ... and, of course, there had to be insects too! (laughs) The whole thing is presented as a series of examples in the form of narratives that are clearly mapped out, but they can develop freely within this framework. We hope that we have covered as much as possible with these examples, but we have another idea that we would like to mention here: when the book is finished, perhaps these kinds of stories can be developed further and expanded for other countries in an online format. That would enable us to open up the participatory project even further.

Alexandra Hamann: Yes, that would be absolutely fantastic... Because it is an issue that affects us all, everyone should be able to say something on it.

*Claudia Lamas Cornejo: So you are planning more to follow the comic, for example, an online publication. What other activities are you envisaging?*

Reinhold Leinfelder: A companion book for the comic. We are doing a lot of research around the issues in the comic. Our framework requires this for one thing, but it also arises from the dialogues with the protagonists. Even if we include footnotes or a glossary in the book and give a list of further reading, we would also like to publish a scientific work that we see very much as the companion book to the comic. Here again the workshop in October is important.

Alexandra Hamann: We are also planning a handout for teachers, as we did with the WBGU comic.

*Claudia Lamas Cornejo: A few practical questions about the workshop »Science meets Comics«: who can take part, which parts of the workshop are open to the public and when will we be able to see the results?*

Alexandra Hamann: People who have registered by e-mail can attend all day on Monday 5 October and until the *LunchTalk* at 2 p.m. on Tuesday. On Monday, the focus is comic theory. On Tuesday, we are looking at the future of food.

Reinhold Leinfelder: We will also present our Anthropocene project on Monday.

Alexandra Hamann: Tuesday is when the artists will get down to work – that will be an experiment! How do you get 10 or 11 artists (laughs) to work together? Will they all draw together or will each one do their own page?

Reinhold Leinfelder: We are giving the green light to something that we have never done before. We have already worked on two books on which different artists were involved. Several artists worked on the WBGU comic, but stylistically they were relatively similar. To mark the Anthropocene exhibition in the Deutsches Museum, we worked with the University of the Arts to turn 30 milestones in the new era on Earth into a single comic strip. Naturally, they had very different styles, but we kept them together with the colour palette and the layout. Here it is going to be exciting to see whether a comic language emerges that is as diverse as food itself is or whether all the artists will converge together.

*Claudia Lamas Cornejo: It looks set to be a stimulating week for observers and artists alike. Thank you for talking to us – we wish you every success!*

Further links:

<http://www.trafo-comic.blogspot.de>

<http://www.wbgu.de/comic-transformation>

<http://www.deutsches-museum.de/ausstellungen/sonderausstellungen/anthropozoen>

The interview was conducted by



*Claudia Lamas Cornejo*  
Head of Public Relations & Fundraising

## Carla J. Maier *The Exhibition KlangSehen*

The base project »Analog Storage Media« is in the midst of preparing for the exhibition »KlangSehen« or »seeing sounds«. It will open on Monday 12 October 2015 at 5 p.m. in the foyer of the Jacob-und-Wilhelm-Grimm-Zentrum. CZ# met with Carla J. Maier, one of the exhibition's curators and organisers, and spoke with her about the project.

*Claudia Lamas Cornejo: KlangSehen – the exhibition's title brings together two strong forms of human sensory perception. How did this exhibition come about?*

Carla J. Maier: The idea for the exhibition emerged from our research in the base project »Analog Storage Media«. The question we asked ourselves is: how is sound stored? Under the premise that sound itself is invisible. How do we encounter sound in our daily lives? In many kinds of representations, sound stands for something apparently extra-acoustic, for example, the volume display on a stereo or the signal as the doors close on an underground train: a blinking light represents an acoustic signal. How do visual representations of sound behave? The base project is also interested in sound transmission and storage processes and issues connected to these.

*Claudia Lamas Cornejo: To what extent does an exhibition lend itself to presenting your research questions?*

Carla J. Maier: We set ourselves the objective of bringing together different scientific and artistic positions in order to explore the phenomenon of sound and its transmission processes. Instead of the conventional purely text-based approach, we decided on an exhibition in order to integrate the many different devices with which sound is created or transmitted. We want to respond to experiments and take contemporary artistic positions into account; these are all brought together in the so-called *KlangSehApparat* (seeing sound device).

*Claudia Lamas Cornejo: What does this »seeing sound device« look like?*

Carla J. Maier: It is an immense scaffolding construction that visitors can walk through. In it the different exhibition objects come together in space to form a single device. The device is a visual model, but at the same time it acts as a mental superstructure for the exhibition. In the different works, artists and students have



each developed their own unique approaches and tools to



CZ# met Carla J. Maier in the foyer of the Grimmzentrum, where the exhibition *KlangSehen* will open on 12 October 2015. Photo: Claudia Lamas Cornejo | BWG 2015.

explore the issue. The objects gathered together present a kaleidoscopic view of the storage, transformation and transcription of sound. The *KlangSehApparat* is built in the foyer of the Grimmzentrum and is accessible from all sides. It invites visitors to walk around it, walk through it and let the installation as a whole sink in.

*Claudia Lamas Cornejo: You just mentioned the foyer of the Grimmzentrum. Is the KlangSehApparat a location-specific work? The Grimmzentrum as part of the Humboldt-Universität library is designed for quiet work. Why did you choose this building and this foyer?*

Carla J. Maier: For us, it is a very interesting location for various reasons. Firstly, because we are in a place designed for silence and daring to make an intervention with sound, even if this *KlangSehApparat* is not a sound installation that constantly produces notes or noises. Of course, the foyer is separate from the rest of the building. The foyer is a place where very many paths cross, a place that researchers and students pass through but also citizens of Berlin and tourists. And that is precisely our point. It is not a museum space in the true sense of the word. Anyone going to the library does not usually do so with the intention of visiting the exhibition. This tension drove us to develop a spatial gesture that enables visitors to explore the exhibition intuitively. On the one hand, we have responded to the foyer's architectural proportions; on the other, we have breached them. The scaffolding acts as a frame for hanging exhibition elements, display cases and translucent panels. It creates the impression of a wave sweeping through the space. At the same time, the elements overlap each other, and this arrangement points to the question of visibility and invisibility.

*Claudia Lamas Cornejo: A key part of the exhibition will be the KlangSehApparat. Visitors have the option to walk around with headphones and MP3 players. What is the idea behind that?*

Carla J. Maier: One of the elements of the exhibition is an audio walk that takes visitors through the foyer and questions everyday auditory habits. We also want to make transmission and storage processes truly experienceable through the other works that are part of the *KlangSehApparat*, and that is why we chose a form where the visitors activate the *KlangSehApparat* themselves, for example, by picking up headphones, listening to something and being able to see it simultaneously translated into visual symbols, as they can with the works »SND&CLR« or »MATERIAL

HÖREN«, for instance. Or by reprising the historic experiment performed by the physicist Ernst Chladni: a control knob is attached to the object »WELLENMUSTER«, and visitors can use it to change the frequencies and thereby influence how the sound waves are represented on the surface of an ink solution. Changing the acoustic parameters enables visitors to gain an understanding of visualisation strategies and how we perceive sound in real time.

*Claudia Lamas Cornejo: Essentially, the exhibition is divided into three sections: Perception, Experiment, Notation. Each of these sections has between two and four works. Can you introduce a work from each section?*

Carla J. Maier: The »Perception« section is about the physical perception of sound and the question of how knowledge about sound is generated through audio-visual transmission processes. An example of this is the work »PLATTEN« by Marcel Pasternak. Here three sheets of metal are made to oscillate using a capacitive sensor as the visitor approaches the work. This shows how sound manifests itself as an interaction between bodies, the spatial environment and objects.

In the »Experiment« section, we have taken different physical experiments and adapted them, for example, in the work »KLANGWELLE« by students at the Department of Cultural History and Theory. »KLANGWELLE« uses the after-image effect in the retina to visualise background noises in real time. Visitors can speak into a microphone and activate LEDs that create the impression of a sound wave moving through air. »Notation« focuses on forms of sound representation that do not fit within the conventionalised forms of classic musical notation. This is rendered very artistically in the works displayed in this section. For example, we have a work by the designer Carlos Campos that takes John Cage's composition »Sonatas and Interludes« as its point of departure in order to generate syntax diagrams that in turn act as instructions for making drawings with an automatic analogue pen and for constructing wooden sculptures. Here a transmission process takes place: from the analogue form of sound into the digital form of symbols and then back into new analogue forms.

*Claudia Lamas Cornejo: What is planned for the opening on 12 October in the foyer of the Grimmzentrum?*

Carla J. Maier: Horst Bredekamp will give a short introduction. Then Christian Kassung and Sebastian Schwesinger will present the research work in the base project »Analog

Storage Media« that led to the exhibition. The opening will also give an insight into the curatorial and scenographic approaches that Franziska Judith Paul and I adopted, and it will conclude with a performative lecture by the designer Carlos Campos.

*Claudia Lamas Cornejo: No doubt during the exhibition you will make new findings and gain new experiences. Will you integrate them into the work of the base project »Analog Storage Media«?*

Carla J. Maier: We are indeed hoping to get new inspiration for the project from different sources, such as the panel discussion »Machines To Hear For Us: Perceiving, Filtering, Storing«, where we want to talk with experts from the fields of sound production, art, building instruments and media studies. At the closing event on 27 November, we will examine specific sound machines, sound sculptures and instruments, and discuss how sound is actually designed and which acoustic and visual parameters play a role in this process. And we will discuss how and to what extent these devices can be considered analogue archives – whether the device is a drum machine, an organ pipe, a sound sculpture or a new kind of instrument. The closing event brings together and distils fundamental questions for the project »Analog Storage Media« and aims to respond to the conversations and discussions that arise in the course of exhibition and to expand them. It will be a chance to discuss these issues in depth. In addition to looking back on the exhibition, we will also look ahead. We will give an insight into the approaches that we want to use as we continue our research. The closing event will end with the performance »Untitled II, solo for sound sculpture instrument« by the sound artist and composer Marianthi Papalexandri-Alexandri, who is an International Fellow in the project »Analog Storage Media«.

*Claudia Lamas Cornejo: We look forward to the opening on 12 October. Many thanks for talking to us.*

The interview was conducted by



*Claudia Lamas Cornejo*  
Head of Public Relations & Fundraising

## Tom Lilge & Christian Stein *gamelab symposium*



Serious Games. Photomontage: Kerstin Kühl.

*Franziska Wegener: You founded the gamelab.berlin. How did this cooperation come about and, looking back, what were the most important steps and developments in the past two years?*

Tom Lilge: How did the gamelab come into being? That's not so easy to answer. Where do ideas come from and how does cooperation work? It's a gradual process. The exact starting point has disappeared somewhere in the haze and maybe that's the way it should be. But there is of course always a certain point where one can say – looking back: We've got something here. There's definitely a »something« between Christian and me. I would describe it as the meeting of two scientists who start a dialogue and develop an interest in and are fascinated by a certain topic and each other's way of thinking, then this interest grows and intensifies and results in ideas for projects.

Christian Stein: Together with Michael Dürfeld I tried to model the genesis of the gamelab and discovered that it had about 30 different stages. We really created this model in order to see: When do certain persons enter the stage, when do new topics arise and when do new ideas crop up?

And at what point does a thing start getting established? This is how all budding interdisciplinary projects develop, projects which are not predefined but first have to develop their own constitution. In this respect, it's true that it was a very dynamic process. The focus of our work has changed several times, the people involved have changed but the lab has nonetheless never stopped growing. Projects have taken on a more concrete form.

Tom Lilge: Concretion and dynamics are mutually dependent. At the moment when two parties come together to pursue a concrete subject, it will develop its own dynamics. And the degree of concretion shows whether there are any dynamics involved at all.

Christian Stein: This also results in a different approach to the theoretical work, since it is clear right from the start that this work will result in concretion phases. Theory was not a lengthy preparation phase for us at this point, because there has always been a strong relation to the application due to the fact that concretion points were present at an early stage. This has been of benefit for both theory and practice.

Tom Lilge: Take the »Carepad« for example: Cooperation between the gamelab and the base project »Health & Gestaltung« came about because I happened to be Anna Roethe's mentor when she started working at the Cluster. This way, initial contact was established and in our discussions we found out that there is a lot of overlap between the topics of her work, which has a medical context, and one of the topics which we are dealing with at the gamelab. Here, gamedesign is the art of motivating people to do things which at first glance don't make much sense in reality – for example engaging in games or video games. Applying these game design techniques in practical contexts, in this case clinical processes, was exactly the point of intersection where our interests met. That's how projects and collaborations develop. If you see yourself and your fellow researchers then as a team, this brings the project forward.

Christian Stein: Our model showed that the first discussion on the topic of »game and medicine« was held at the WiMi workshop, which is also where we were requested to start this dialogue.

Tom Lilge: The WiMi workshop and a welcoming culture are aspects of the Cluster which some people consider rather unimportant. However, these two elements resulted in one of the most interesting collaborations in our current work at the gamelab ...

Christian Stein: The Cluster is designed to create links between the projects. The base structure of the projects is merely an initial structure. This means that the focus is on connecting disciplines and people. Therefore, WiMi workshops and a welcoming culture are essential for creating these links, despite the fact that the network has to function alongside everyone's everyday work on their »own« topics and sometimes even conflicts with this. One's own disciplinary approach and everyday tasks can consume all one's time and energy. However, if you don't take some time out for interdisciplinary work, which the Interdisciplinary Laboratory promotes like no other institution, you will miss out on a lot of the brilliant opportunities the Cluster has to offer.

*Franziska Wegener: The gamelab symposium »Theory and practice in games« will be staged on 15 and 16 October. What kind of a programme have you worked out?*

Tom Lilge: The symposium is the second step in opening up our lab to the general public. Last year's gamelab week

addressed the Cluster-internal public. We spent one week presenting our work and inviting members of the Cluster to get involved in the topics and to participate ... Now, we are going one step further and are opening up our lab not only to the Cluster-internal public but to the general public outside the Cluster and have also invited people who are not Cluster members. In my opinion, the symposium has the same logical basis as the Cluster: It will start off with a theoretical section in which experts from the Cluster hold lectures on the topic of games and their relevance for the Interdisciplinary Laboratory. Lectures by external experts allow us to see things from a new perspective and broaden our horizons. The third part is dedicated to actual practice – the subtitle of the symposium is »Practice and theory in games«. We don't just want to theorise, hold discussions and hopefully compile a good conference transcript, ideally we also want to create design experiments which have the character of a product. Therefore, we have invited people who are involved in practical work in this field: professional game developers, experts who have decades of experience in game consulting and hungry start-up companies who want to change the world. We want to create a clash like the ones we experience at the gamelab every day. Theory and practice collide, people argue – and enthusiasm is the gravitational force that brings everything together again in the end.

The title of the symposium is a symbol for this idea: Symposi○□× – strange symbols sneak into this venerable word from the back to create something new. Every gamer will recognise these symbols: They are the command keys on a controller. Every person who is not involved in games will think: Strange, but interesting. And neither of them knows how to pronounce the word. Et voilà: you have a subject for discussion.

*Franziska Wegener: What are your next steps following the symposium?*

Christian Stein: We want to keep our structures open for cooperation and continue to signalise outward connectivity. We have established some contacts, for example with the Charité University Teaching Hospital, which has already expressed great interest in the »Carepad« project. We will try to keep our course and retain a mixture of theory and practice. What projects this will actually result in is not quite clear at this stage. Maintaining this openness is also beneficial in light of the emergent development of the gamelab. Of course we shall systematically finalise those projects which we have already started. We are currently

about to test our first »Carepad« module. Now it will first be tested as part of a study at the Charité and subsequently in regular usage. The »Singleton« project has made its first gravel impact as an analogue version; we are currently planning and developing a mobile version which still has to undergo a number of changes and will incorporate the experiences of the more than 100 persons who have tested it. Furthermore, we are working on the »Decide & Survive« project in cooperation with Steven Kavalle from the TU Braunschweig, a project which aims at integrating political science theories in a game. In this project we are trying to find out how games can be used meaningfully in a scientific context. Here again, we want to develop specific applications and reflect on the things we have developed at every stage so that we can keep track of various things like: What is happening at this stage? How can we utilise it? What works, what doesn't work? And finally: What does this tell us about the theory of games in general?

*Franziska Wegener: Which parts of the workshop can you recommend for members of the Cluster who haven't had much contact with the gamelab yet?*

Tom Lilge: On 15 October we will be starting with more Cluster-internal lectures. In the afternoon we will be holding so-called »Sprints«, where people who are involved in practical work use a specific example to show what game-related projects they are currently working on and present their vision for the main topic of »games«. This will be the first clash: Internal Cluster members working on theory meeting up with external experts involved in practical work. On the second day, there will be more lectures by external speakers. Thorsten S. Wiedemann, founder of the largest Independent Games Festival »A Maze«, will be one of them, also Thomas Bremer who is in charge of the Gamechanger Cluster at the Hochschule für Technik und Wirtschaft, but other interesting thinkers such as philosopher Markus Rautzenberg will get a chance to voice their ideas as well. In the afternoon of 16 October, the workshop will begin: The gamelab invites everybody to participate and get involved in ongoing projects. We need the expert knowledge and opinion of as many people as possible! Participants can choose whether to help Christian Stein in his »Singleton« project, join Anna Roethe in the »Carepad« project or work on the »Decide & Survive« project with Steven Kawalle. Certificates of internship will be issued upon request ... (he laughs)

Christian Stein: We would like to invite all members of the Cluster - we have an exciting and playful programme which not only aims at communicating what we do, but is fun as well.

The interview was conducted by



*Franziska Wegener*  
Student Assistant - Public Relations and Fundraising

## Bettina Bock von Wülfigen

### *Picturing the Body in the Laboratory*

On 6 and 7 November 2015, the conference on »Picturing the Body in the Laboratory« will be held at the Cluster. CZ# met Bettina Bock von Wülfigen to discuss the content and context of this event. In her role as research assistant in the »Gender & Gestaltung« base project, she is chairing the conference and also contributing to the programme as a speaker. Her current research looks into the modelling of relationships at sub-cellular and super-cellular levels and the transition from reproduction to (re-)generation in bio-science and medicine. At the Cluster's main office, Bettina Bock von Wülfigen is responsible for »Gender & Diversity« topics.

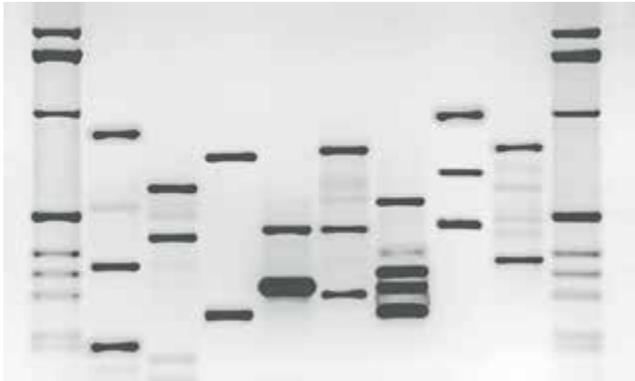
*Franziska Wegener: The two-day conference on »Picturing the Body in the Laboratory« will be staged at the Cluster at the beginning of November. How did this come about?*

Bettina Bock von Wülfigen: I found the programme that finally evolved quite fascinating. Originally, the whole project was planned in order to produce a publication – and this is now actually being written. It will be published in both English and German in the *Bildwelten des Wissens* (Image Worlds of Knowledge) series. Following the many discourses and discussions sparked off during the Cluster retreat in January 2015, this idea has now developed into a continuously expanding event thanks to a fantastic level of interdisciplinary synergy. My topic of "Traces in the laboratory - in the 19th century and now" was met immediately with tremendous enthusiasm and excitement. This made it easy to implement the project with great elan. Very soon, contributions that were closely related to the common question were coming in. During the meetings, the moderators and other interested parties showed a high level of commitment. The conference that is now to be held has evolved from this joint action. The idea for the conference was originally developed in the »Gender & Gestaltung« base project before we entered into discussions with our colleagues from the physics and the biology fields. We had initially directed our efforts historically to the concept of traces and on the material traces left by something that no longer actually exists in these traces. But the traces still indicate the thing that is no longer there – otherwise they themselves would become an epistemic object. We were interested in the 19th century from the aspect of the lab-



In her conversation with CZ#, Bettina Bock von Wülfigen also presented the conference programme in more detail. Photo: Claudia Lamas Cornejo | BWG 2015.

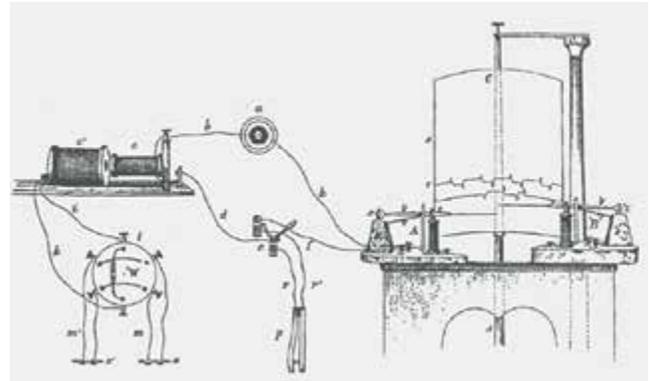
oratory, which was becoming an institution at that time. We would like to study how traces gradually became a scientific phenomenon while, at the same time, bodies and identities were being increasingly circumscribed, described and defined in terms of their specific characteristics, particularly with regard to *race* and *gender*. In discussions held at the Cluster with our colleagues from the natural sciences sector, it seemed to be even more interesting to examine these questions together – on a second day of the conference, during which we would take a look at the present-day laboratory and extend the entire conference to include the question of how the process of generating traces and evidence has changed over time, before interlinking these questions – with the result that the subtitle of the conference is now »Genesis and topicality of evidence-oriented imaging in institutions of the long 19th century and today«. We were especially concerned with the question of whether present-day imaging is facing problems similar to



Autoradiograph of a DNA blot. © Micah Baldwin.

those encountered in the 19th century. It is often alleged that images are being produced much more abstractly in laboratories nowadays and are quite dissociated from the material objects to which they relate. So this is one of our questions: Is this description accurate enough and does it actually describe the difference between the imaging processes of that period and of the present-day? Or are we using it to obscure the fact that imaging processes of the 19th century also involved making abstractions and were not just simply enlargements? For example, take a microscope: using a much more complicated process, it produces images that are not the same thing as an enlargement. If we take a closer look at this topic, the question of “what is different nowadays?” becomes much more explicit. What changes are introduced by digitising techniques, what relationship is established between matter and the digital form? Is it really an opposite form or is the transition more gradual? And how can it be described?

In the course of the discussions, we saw that the dichotomy of natural sciences and the humanities could actually be replaced by a hazy distinction between forms of research dealing with the production of traces and forms dealing with the interpretation of traces. This opens up the possibility of speaking much more specifically about methods and common aspects of the sciences and humanities across disciplinary boundaries. If we discuss these issues very intensively, as we did in the run-up to this conference, we find a close affinity to many scientific fields which, unfortunately, are often treated as not being representative – for instance because we are still thinking of natural sciences as being experimental in the molecular-biology sense of the 1960s, and are still impressed by corresponding literature not adopted by the humanities until a much later period. Even in those times, the understanding of sciences was formed by conjunctions, giving a back seat to many



Kymograph of a Donders machine. Source: Johan Jacob de Jaager, *De physiologische tijd bij psychische processen*, Utrecht 1865, Tafel 1.

relevant scientific approaches and universal conditions which are again receiving more attention now.

*Franziska Wegener: How do you understand the term “laboratory” and what fields of research do the various contributions come from?*

Bettina Bock von Wülfingen: In historical terms, we consider the laboratory to be a wider and, at the same time, very specific concept. What all contributions have in common is that they deal with state-institutionalised forms of research or investigation, i. e. securing evidence in this sense. Our present-day colleagues from the field of natural sciences speak of traces of elementary particles in the physics laboratory or in CERN, which by far exceeds normal laboratory dimensions, or about their work on microscopic imaging methods in cancer research, or the tracing of indicators in taxonomy and morphology and live tracing of a nanomachine in a cell. But it is also a question of generating an identity by means of fingerprinting or passport photos, which emerged at the end of the 19th century, as a cultural change that developed not only in the scientific laboratory but also in cultural laboratories, with the common feature that they were all institutionalised and supported by the national states, quite in the way seen by Carlo Ginzburg, who was one of our guiding figures for the concept of traces that we are using. In this period of industrialisation of research, the dye-marking of cells was introduced and, not much later, microphotography, first around the mid-19th century and again at the time when chromosome photography was introduced around the mid-20th century, as studied by Barbara Orland and Soraya de Chadarevian.

*Franziska Wegener: How is the conference programme planned?*

Bettina Bock von Wülfigen: On the first day, in order to emphasise

the contrast, we are looking at the 19th century, and on the following day, the modern works of the 20th century. The second day will start with an introductory keynote by Soraya de Chadarevian on microphotography in the 1960s – here a remarkably good comparison is possible since Barbara Orland will discuss microphotography in the mid-19th century on the first day. In this way we can create a link – or establish a bridge, so to speak. Transitions will be a repeated topic throughout the discussions. After all, we have the cross-disciplinary questions relating to materiality, i. e. the traces left by something which is no longer there when it is no longer there, which does not apply to all objects, however. These questions will resurface in all discussions and here too, they will always involve comparisons. The second day will be dedicated entirely to talks by the scientists, who have made a tremendous contribution to our discussions and who, already in the run-up period, enabled us to establish relationships between methods which evolved in the 19th century and present-day methods, and to ask which, whether and how changes are becoming noticeable in this field – and which changes are not. This question probably makes more sense than asking whether everything is totally different nowadays to the situation in the 19th century. As an additional format, we are including resumés in order to emphasise the interrelationships between the topics of the two days. After every third talk there will be a resumé. These will last half an hour and provide an opportunity for comprehensive discussion during which we shall look forward to the next day or look back on the discussions and contents of the previous day, whichever is the case.

*Franziska Wegener: What is the relationship between your own field of research and the conference programme?*

Bettina Bock von Wülfigen: My field is the cultural history of life sciences, particularly with a focus on cellular, or rather objects that are subcellular or at most the size of a single cell. The study of such objects as a separate field did not become possible until they could be made visible by optimised microscopy and dye-staining methods, which have changed tremendously during the past 140 years. This is an interesting field, especially when it gets down to the molecular level, which is expected to be purely mathematical or chemical, but despite – or maybe precisely because of – its abstract character, cultural questions of the type encountered in other fields are also found here. This becomes particularly clear in my comparison of

inheritance within biological cells and inheritance as set out in the German civil code at the end of the 19th century. Or, to put it in other words, molecules act in accordance with our cultural and technical possibilities. This doesn't only apply to the 19th century, but also to the present. For example, Fred Gage, the geneticist studying neuro-regeneration, had explained that up to just 15 years ago, it was considered impossible that an adult brain could develop new neurons; he considers the reason for this to be that in all cultural fields the brain was seen as a type of computer, including the field of neurology, and computer hardware is not able to renew itself – at least in those days it wasn't. (laughs) Present-day computers allow completely different patterns of thinking, both in terms of complexity and of process reversal. Becoming aware of cultural thought-barriers can be useful here.

More specifically, my research deals with the transition from generations to procreation and inheritance in the 19th century and their apparent reversal nowadays. Generation could be seen as simple cell-division, the development of scions, whereas procreation was deemed at that time to be fertilisation – something that requires two genders. That was in line with genetics research. Nowadays, changes are taking place that make it seem more natural to talk of generation again rather than procreation. Whereby use of the word »again« is problematic, since the concept of generation as seen today will be totally different from the way it was understood before industrialisation; that is precisely the question – how does this concept manifest itself nowadays? In the present-day return to the generation concept, the genome, now thought to be flexible, and general acceptance that cells can exchange genetic material across species and without fertilisation, as well as increased attention to microorganisms, which make up the major part of the entire world's biomass and which do not multiply by procreation, but by cell-division, all play a role. Stem-cell research, which shows to what extent cells can be regenerative, also plays a role. This can be observed at many levels, for instance in medical procedures. The trend is to let a body regenerate itself – for example using stem cells instead of conventional methods based on the principle of "repair". All in all, a cultural shift with a tendency towards the generation concept can be observed. Even at the cellular level, the latter-day distinction between production and reproduction seems to be fading – whereby the process of procreation is no longer interpreted as being something exclusive and totally different from cell regeneration.

This present-day merging of production and reproduction has been described, for instance, by Boltanski and Chiapello as well as by Hardt and Negri in the context of various social and economical processes, but of course not on the level of a biological cell, even though this is obvious considering the marketability of reproductive body material and the related bio-economy. In cultural analyses, this also relates to household work, emotions, sex work ... I am keen to see the extent to which changes in the observation of cellular processes can be interpreted in this context, for instance when epigenetics and systems biology lead to an unclear distinction between a cell nucleus and cell plasma. Formerly, the cell nucleus was a synonym for productivity, around 1900 it was still held to be masculine. On the other hand, cell plasma was considered to be reproductive and feminine. Similar to this change in perspective, the boundaries and distinctions between the environment, nature and culture are now becoming more permeable. In this process, what roles do models that reject rigid stability and approach a post-kybernetic understanding of fluidity play? These models evolved against the background of discussions about economical and ecological crises in the 1970s and 1980s. So, in turn, what else does the application of such models imply?

*Franziska Wegener: You also mentioned that this conference is meant to lead to a publication ...*

Bettina Bock von Wülfigen: Yes, that's correct. Almost all the articles in this volume – which correspond to presentations at the conference – have already been submitted. It will be published in *Bildwelten des Wissens* and there will be printed and on-line versions in German as well as an English publication. We are already reading each others' texts and determining where we can make comparisons and contact each other in order to gather material for the resumés and so that we can respond to each other during the discussions. The discussions will be moderated by people who are not holding talks. I am very pleased that colleagues from the Cluster and from various fields of research have immediately volunteered for this task.

*Franziska Wegener: What is the deadline for registering for the conference?*

Bettina Bock von Wülfigen: Registrations are accepted up until 25 October. Apart from this, we are issuing public invitations to the evening with Peter Galison. He will be lecturing on »The Conviction of Scientific Images« on the first day of the conference, 6 November, at 7 p.m. in the

main building. I have already received his abstract and find it to be excellent; he has tailored his talk specifically to this conference and follows up on the historical book *Objectivity* which he co-authored with Lorraine J. Daston: Here he discusses the question of what ideal concept of objectivity is inherent in present-day imaging processes. After the talk we will be holding a reception and we warmly invite anyone interested from the general public, our conference guests and keynote speakers to meet us there for informal discussions.

*Franziska Wegener: Thank you very much for giving us this interview.*

The interview was conducted by:



*Franziska Wegener*  
Student Assistant – Public Relations and Fundraising

## David Messinger *Insights into the Everyday Lives of Patients*

Germany scholarship holder David Messinger has been performing research on »The doctor-patient interface as the location of an interactional construction of the understanding of health and illness« at the *Interdisciplinary Laboratory* since April 2015.

*Franziska Wegener: You have been a member of the Cluster and have been working on the base project »Health & Gestaltung« as a Germany scholarship holder since April 2015. How was your start and what were your first steps here?*

David Messinger: My first step was a mini workshop to which my co-scholarship holder, Benedict, and I were invited. The workshop's aim was to find out what direction the sub-projects of the base project might take and to identify which project we might play a part in. The team had already spent a whole day brainstorming, the room was full of whiteboards covered with writing from top to bottom. Then they presented the sub-projects to us and Benedict, who has a degree in business informatics, and I as European ethnologist, both felt attracted to the »Carepad« project, which is concerned with the development of an application designed to run on an iPad to help patients navigate around the healthcare system.

*Franziska Wegener: Your field of research in the base project is the doctor-patient interface as the location of an interactional construction of the understanding of health and illness. Is this question only relevant to the »Carepad« project or will you pursue this topic as part of another sub-project as well?*

David Messinger: We were offered the chance to develop our own project as part of the sub-project. We thought the best thing would be to link up to an existing project if we wanted to create actual added value with our research work. We have drawn up a separate research project which we can carry out within the »Carepad« project. Benedict and I are examining what patient needs the application's features would have to address in order for patients to accept it and consider it useful for their everyday life. We want to carry out a study to identify these needs.

*Franziska Wegener: Then you will be doing field research?*

David Messinger: Yes, that's right. In cooperation with the Charité, the »Carepad« team has identified cancer patients as target group for the application and we want to look



David Messinger will report on the focus of his research in the »Carepad« project. Photo: Franziska Wegener | BWG 2015.

at their patient history with the assumption that there are some things in common in the course of a chronic disease. We want to know: How can we support cancer patients who have to undergo regular treatment in their everyday lives and help them meet the challenges which they, their environment and the healthcare system face owing to their disease. In the first step of our project we will be holding qualitative interviews in order to identify what tools patients have used so far in their everyday lives, for example patient diaries, internet forums and support groups. Later we want to quantify this information, and this is the point where Benedict's business informatics know-how comes into play.

*Franziska Wegener: How are you going to select the patients for your study or how do you intend to establish initial contact with them?*

David Messinger: I have to admit, that isn't easy. Three or four weeks ago, we held another workshop where we presented our project. What's more, we have compiled a project presentation and sent it to the Charité. We hope that this will help us in establishing contact with patients.

*Franziska Wegener: But you and Benedict intend to hold interviews, rather than carry out participant observation?*

David Messinger: Exactly. Some of the members of the »Health & Gestaltung« team – Anna Roethe, Thomas Lilge, Anika Schultz and Christian Stein – have focused on participant observation. This means that they sit in on patient treatments at the Charité and observe what difficulties arise. However, in addition to the processes at the Charité, we also want to gain an insight in the patients' everyday lives. We decided it was not feasible to carry out and evaluate the results of participant observation of patients' everyday lives within the scope of our project and have therefore decided to hold qualitative interviews instead. This should enable us to gather information on the difficulties the patients experience in their everyday lives owing to their disease.

*Franziska Wegener: What kind or form of presentation are you planning for your results?*

David Messinger: We have of course discussed the desired end product of our project. And have come to the conclusion that it shouldn't be a poster. Since interviews produce texts, we decided that we will most probably present our results in text format, in the traditional way, so to speak. Of course this will also result in some form of presentation. We intend to organise a »LunchTalk« where we can discuss our results and the possible further course of action with members of the Cluster. But at this point we are still working on a draft for the project.

*Franziska Wegener: Let's talk about your academic career: You started studying ethnology quite late. Before that you studied costume design and also worked in this field. Then you decided to study ethnology. How come?*

David Messinger: I worked as costume designer for small productions and as wardrobe master for larger theatres and opera houses. What got me interested in European ethnology was the way it looks at social constellations, and this very much resembles the way I used to observe my environment before I started my course of studies.

*Franziska Wegener: What's the difference between a costume designer and a wardrobe master?*

David Messinger: Costume designers draw sketches of the costumes. Wardrobe masters are the people who take these sketches and turn them into a pattern. They decide how to make the costumes and manage the workshop. In

the last two years of my work in this field I worked for the stage design workshops of Berlin's opera houses. I have always been fascinated by the theatre. It always gave me the feeling that culture is there to serve mankind – to put it in an idealistic way.

*Franziska Wegener: Have you already made plans for your future after this project?*

David Messinger: I was 31 when I decided to go back to university and I had quite a clear idea of what I wanted to do. I am currently specialising in ethnology of organisation. However, my cooperation with Stefan Beck in the »BeMobil« project, which I am currently working on as a student assistant at the Institute for European Ethnology and which deals with rehabilitation technology, has also sparked my interest in delving into and learning more about the anthropology of medicine. This is why I applied for the job in the base project »Health& Gestaltung«. In this respect, my plans for the future are strongly linked to my work here at the Cluster. In my opinion, anthropology of medicine and of organisation go together well since the medical sector also involves work systems which in turn shape ways of thinking. It's a very interesting challenge dealing with these work systems. With regard to the doctor-patient interface as the location of an interactional construction of the understanding of health and illness, my question is: How does this work in real life?

*Franziska Wegener: We are looking forward to seeing the results you will be presenting at the LunchTalk, and thank you for the interview!*

The interview was conducted by



*Franziska Wegener*  
Student Assistant - Public Relations and Fundraising

## Simon Lindner Knowledge Engineering in the Semantic Web

*Franziska Wegener: You have been a member of the Cluster as a Germany scholarship holder for several months now. How did your first months at the Cluster go and what were your first steps and impressions in the base project »Historical Structural Investigations«?*

Simon Lindner: I was given a warm welcome during my first months here. This helped me to find my bearings. My project has now been clearly defined. After discussions with the others working on the project, Michael Dürfeld and Friederike Saxe, I had started to draw up an outline of the project. Only yesterday, Michael, the architect in the team, and I held our second meeting and put my project on a solid basis: The project will deal with knowledge engineering in the Semantic Web. We have historical scientific literature at our disposal.

*Franziska Wegener: The oceanographic lithographs?*

Simon Lindner: Exactly, this is one of the collections currently being recorded and re-semanticised, remodelled and being made accessible again – with the help of a new tool, an explorer. A new interface is being programmed for this purpose. We have not yet reached this stage for the »Challenger Reports« dating back to the 19th century. In addition to my work on the base project, which focuses on the depicted organisms, it is my task to analyse and classify the organism »plate«.

*Franziska Wegener: What does »Knowledge engineering in the Semantic Web« mean exactly?*

Simon Lindner: It's about indexing these objects, both the animals and the plates. But that's not all. Simply indexing the date on which a plate was made, who produced it, what segments can be seen on it and which chapter they belong to, for example, would result in a kind of index that solely aims at capturing the raw data.

The special thing about the Semantic Web is that links are created in the course of annotation, so that I can make a search query for several parameters at the same time once I have finished. The collection is then machine-readable and very specific search results can be obtained. A network like this is much more complex than just a table, of course.

*Franziska Wegener: You are studying Art and Visual History*



Germany scholarship holder Simon Lindner in the interview with CZ#. Photo: Franziska Wegener | BWG 2015.

*and Philosophy at the Humboldt Universität. Your project is part of a very specific topic. How did you learn about the base project »Historical Structural Investigations« and what do you find so exciting about this work?*

Simon Lindner: As I am extremely interested in scientific images, »Image Knowledge Gestaltung« very much appealed to me. In my opinion, it is worthwhile and challenging to regard images as »historical structures«. What interests me from the subject-specific aspect is the indexing, this game of searching for terms. I ask myself: What are the relevant categories? Where is a need to be more specific? How many ways can we understand our world? And of course the plate format reminds me of Warburg.

*Franziska Wegener: Why exactly Warburg?*

Simon Lindner: Warburg is a kind of originator and icon of the science of images. He has remodelled art history

to create iconography by emphasising: »I am not an art historian, I am an image historian.« With this in mind, he pinned his picture story to large wooden panels.

*Franziska Wegener: What are your plans for the future? Has the interdisciplinary work at the Cluster influenced your decision on how to proceed with your academic career?*

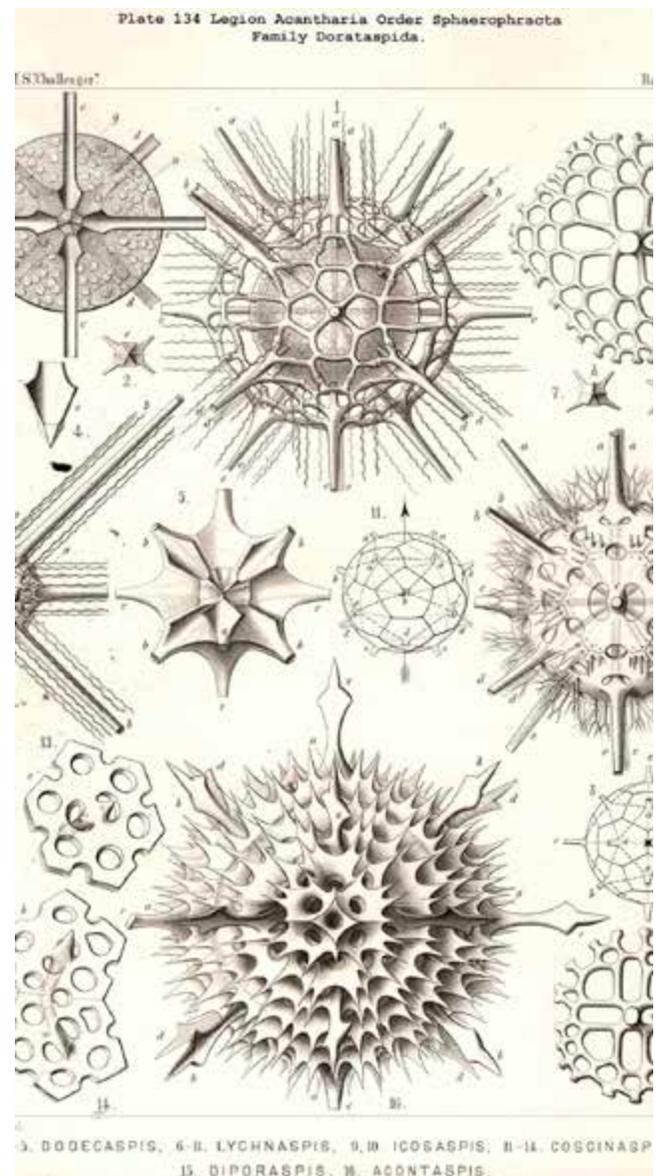
Simon Lindner: It is very productive being integrated into the Cluster as a research team. At least knocking on the door and trying on the shoe (he laughs). It opens up new perspectives. Of course I am particularly interested in the Humboldt Lab and practical exhibition work. This is a field of research which addresses a question which has been on my mind a lot: How can we make scientific work visible?

*Franziska Wegener: Well, we wish you all the best!*

The interview was conducted by



*Franziska Wegener*  
Student Assistant - Public Relations and Fundraising



«Ernst Haeckel and Adolf Giltch (drawing)/Eduard Giltch (Lithograph): Radiolaria Plate 134, Jena 1887, Lithography«. Source: Report on the Scientific Results of the Voyage of H. M. S. Challenger, Zoology Vol. 18, London Edinburgh Dublin 1887.

## Andrea Popelka *Beyoncé Knowles and Contemporary »Mainstream« Feminism*

*Franziska Wegener: Andrea, how were your first months as a member of the »Gender&Gestaltung« base project?*

Andrea Popelka: My mentor, Sophia Kunze, and I have a very good working relationship. We met and talked about the Cluster and about research interests in general and discussed topics we could possibly research on. We had a pleasant and open discussion about our experiences at the university and in our course of studies. Sophia offered me to meet at regular intervals and said that I could always contact her whenever I want.

*Franziska Wegener: You are doing your own, independent research within the base project. What is your project about and what stage have you reached now?*

Andrea Popelka: I am interested in various topics. On the one hand I ask myself what features are characteristic for contemporary »mainstream« feminism and what stage of feminism we have reached today. I thought it would be very interesting to take a very popular celebrity, such as Beyoncé Knowles, and look at the image she presents in terms of body and feminism. She is very popular all around the world and is considered a symbol for women's empowerment and emancipation. We could ask ourselves whether she is upholding traditional cultural norms or whether the character she represents also irritates people and has a subversive potential. Sophia brought up the question of whether there is any room at all for criticism in a neoliberal world or in the pop business. On the other hand, my main interest is not the images of bodies but the bodily sensation. There are more recent movements in the queer-feministic sciences which deal with the interaction between body and environment: the so-called affect theories. I would like to analyse some texts related to this topic. They deal with the question of how social structures influence our bodily sensation.

*Franziska Wegener: How important is your methodical approach? What I am aiming at is not the difficulty of discourse analysis, I am thinking more in terms of the various disciplines which, on the one hand, strengthen each other due to overlaps, but on the other hand, require different approaches: For example, applied cultural sciences, philosophy and media studies. How would you describe your approach?*

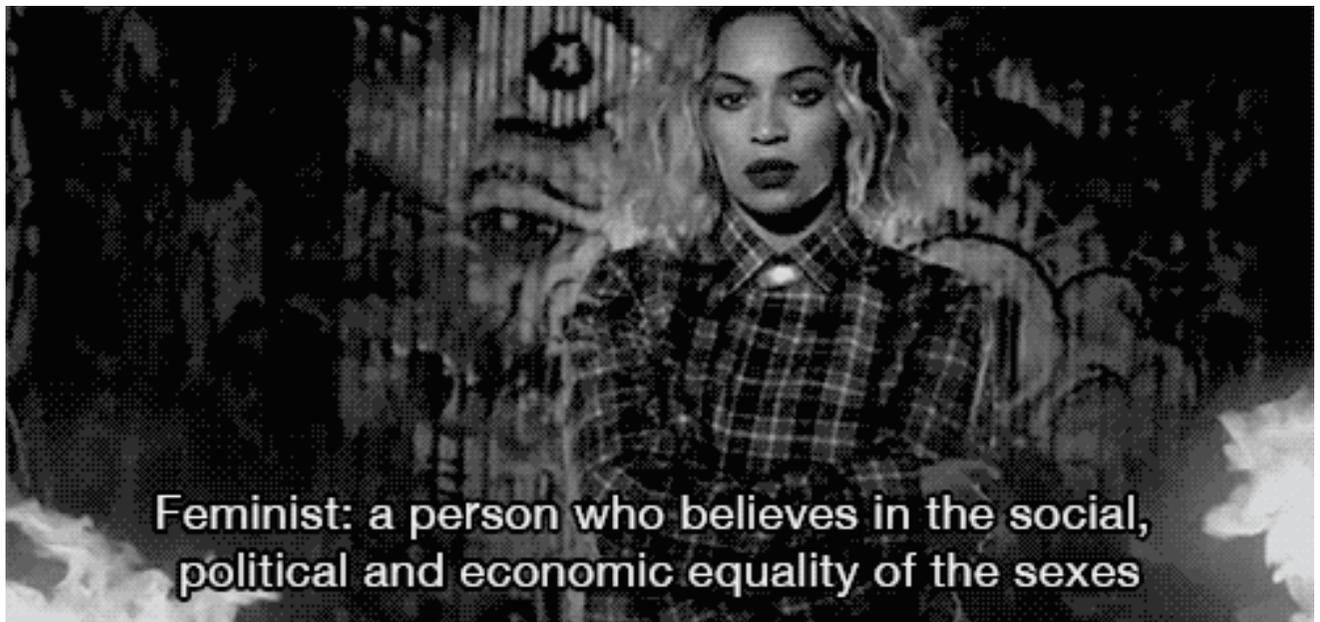


Andrea Popelka talks about her research interest in »mainstream« feminism. Photo: Franziska Wegener | BWG 2015.

Andrea Popelka: Sharpening the focus is a decisive challenge. The relevant literature is written unexpectedly, unforeseeably, concepts are not clear and the authors develop complex relationships. This can be very challenging. What we need to do is to narrow down the information and understand the interaction of norms, images and bodies. It is fun to begin with a broader view on the topic and to deal with the texts in a playful manner at the beginning.

*Franziska Wegener: Do you know yet what format you intend to use to present your research work? Will it be a paper or do you want to develop an installation? And will you present your own work in the Cluster, along with the others involved?*

Andrea Popelka: Sophia suggested presenting it in text format, however, I would like to produce something more elaborate. Since I am interested in contemporary arts it would be nice to find a different way of presenting our results than just writing a text which only a few people read.



Screenshot of the video »Flawless« featuring Chimamanda Ngozi Adichie. Source: [http://31.media.tumblr.com/aoa9bb13f46861d7062e9ef8e0f01b3/tumblr\\_my6hmcExqt1r73p5do1\\_500.gif](http://31.media.tumblr.com/aoa9bb13f46861d7062e9ef8e0f01b3/tumblr_my6hmcExqt1r73p5do1_500.gif)

*Franziska Wegener: This project would lend itself to moving images. With regard to the dedicated Interdisciplinary Cluster: Can you already say whether this has influenced your working methods, or is it too early to judge?*

Andrea Popelka: I think it's too early to answer that question. We are trying to find our way into a large system and it is not clear yet at what points I can play a productive part for all sides. The inspiring symposiums and events help in this decision-making process. Above all, I would love to take part in the regular meetings of the workgroup for the main exhibition titled »Gestalten«.

*Franziska Wegener: How did you find out about the »Gender & Gestaltung« base project?*

Andrea Popelka: The HU informed me of the Germany scholarship programme and I started to read up on the theme classes. To end up in a place where research actually takes place and where I can be part of it – this format was new to me. The project descriptions appealed to me and then I applied for the scholarship.

*Franziska Wegener: Do you already have any ideas what you want to do following the scholarship?*

Andrea Popelka: First and foremost I am interested in contemporary arts and organising exhibitions. Curating is a demanding buzzword, but organising exhibitions or cultur-

al projects is what I want to do. The Haus der Kulturen der Welt in Berlin which deals with current issues and discusses the arts, humanities and natural sciences – that would be my dream job (she laughs).

The interview was conducted by

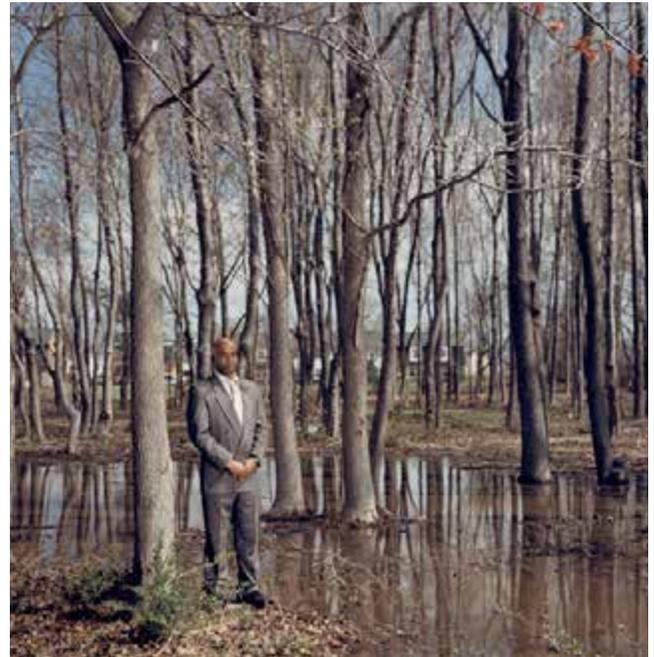


*Franziska Wegener*  
Student Assistant - Public Relations and Fundraising

## Nina Kathalin Bergeest *Visualising Evidenz Generation*



Taryn Simon, »A Living Man Declared Dead and Other Chapters I-XVI-II«, exhibition at the Tate Modern, 2011



Taryn Simon, »The Innocents«, detail, 2003

Since April 2015, Nina Kathalin Bergees, as a Germany Scholarship holder at *the Interdisciplinary Laboratory*, has been carrying out research on the use of images in the American criminal justice system. Her research is based on the »Innocence Project« by the artist Taryn Simon.

*Franziska Wegener: How was your start as a Germany Scholarship holder in the base project »Gender & Gestaltung« ?*

Nina Kathalin Bergeest: My mentor, Sophia Kunze, had already indicated during my interview that there might be a possibility of me holding a lecture as part of the planned »Dark Rooms. Räume der Unsichtbarkeit« workshop. I found this prospect very exciting, since one doesn't normally get such an opportunity as an undergraduate. During the first general workshop for all scholarship students in our theme class we were shown the rooms of the Cluster and had the organisational procedures for the coming year explained to us. Afterwards, Sophia and I sat down together and discussed my presentation. Since this was only just over six weeks' away, we discussed what was realistic in this time, and by way of my planned project came back to the topic of my Bachelor's dissertation, which I had submitted a short time ago. In our discussions we realised that the arguments I had brought forward in my disserta-

tion would fit perfectly into the workshop programme. And so I put up an abbreviated version of my dissertation for discussion and I can now make a good start to my planned project on the basis of this. Here, too, I want to base my research on a work by the American artist Taryn Simon – »The Innocents«.

*Franziska Wegener: Can give us a brief summary of what your Bachelor's dissertation was about?*

Nina Kathalin Bergeest: It dealt with one of the artist's later works called »A Living Man Declared Dead and Other Chapters«, which was exhibited at the Neue Nationalgalerie in Berlin in 2011. Up to then, no-one had adequately discussed this work, neither in terms of form or of content. Since the complexity, dimensions and content of this work fascinated me, I set out to take a closer look at the 18 chapters it comprises and to examine in particular the complex image-text-relationships. The work includes more than 1000 photographs and a number of different text elements. Using a strictly repetitive three-part structure, each chapter addresses human stories that are based on real events. I became increasingly aware that the artist's aim was to show how images and text create specific visibilities and discover existing invis-

ibilities. It is through this observation that I came across the current discourse on Evidenz during my research. This approach is mirrored in the final structure of the work: Each detailed description of the work is followed by a theoretical chapter, which addresses not only the etymological derivation of the term “Evidenz”, but also cites current viewpoints that are relevant for the work. Using this as a basis, I then examined the first chapter of the work as a sample and analysed the extent to which interaction of image and text can be regarded as visualisation of the generation of Evidenz. Evidenz can be generated in many different ways and is at the same time disturbed over and over again and therefore revealed as being an effect. There is no uniform image, no uniform interpretation. Instead, various procedures of its generation are disclosed and are demonstrated to the observer. In a further step, I have taken into account the elaborate exhibition arrangement, which refers back to the laboratory and archive rooms, which themselves, in turn, are related to generation of Evidenz. Finally, I returned to the starting point of the presentation. As already mentioned, the eighteen fates and stories shown in the work have a »real« point of reference and had already been reported on in the international media. In a direct comparison, I noticed that the images and texts used by the media intended to address emotions much more strongly than Simon’s form of presentation did: The media reports used a lot of direct speech, personal information, very expressive image material. The artist deliberately includes no such material. Her photographs, obviously posed, avoid internal narration and her texts dispense with imagery. In this way, we, as observers, are kept at a great distance. This is an aspect that interests me greatly.

In classical rhetorics already, addressing fantasy and emotion was a way of enhancing the »evidentia«, which was more than a simple appeal to intellect and reason. The narrative was related in such vivid language that listeners felt that they themselves were experiencing the event. Simon refuses to offer us this experience. The events, which all have something to do with violence in the broadest sense of the word, do not affect us directly, a certain distance is maintained to what has actually happened, allowing us to look behind the scenes. The other side of the coin, however, is that the people and their stories seem to be so far removed that it is difficult to grasp them at all. In the end, the question that I ask myself is whether we don’t also require other images and texts which make us directly aware of human tragedies? How should we react to images that involve human destinies? What can/should we and what can’t/shouldn’t we show?

*Franziska Wegener: Do you go into these questions as part of your project here at the Cluster?*

Nina Kathalin Bergeest: Not directly ... my project is more specifically about a certain type of image, namely the use of images in the American criminal justice system. The basis for the project is Taryn Simon’s »Innocence Project«, which she implemented in 2002 in conjunction with the New York Times Magazine. She portrayed Americans who had been unjustly sentenced and whose innocence was subsequently proven by means of DNA tests. These tests were funded by the project and Simon had the task of documenting them in the form of photographs. In all cases, the reason that these people were sentenced was so-called »mistaken identification« during police identity parades, or as in most cases, by the police repeatedly showing facial photos of the suspect to witnesses. Something which I noticed when I took a closer look was that: of the 50 persons involved, only one was a woman and only ten of the men were white. Up to now, this fact has not been addressed. On the contrary, in the introduction to the catalogue it says: »wrongful conviction can happen to anyone«. But is this really the case? There seems to be some kind of contradiction here. However, I am not yet quite certain how the artist made her selection, and whether it is possible to generalise from this cross section. Part of the project will involve finding out how this system actually works, who ends up in what file and how the justice system handles these photos if there is a suspect. I am still not sure how easy it is to access reliable information, but I hope I can find this out. One of the main questions driving me is whether there actually are any links between the categories »race« and »gender« when dealing with so-called »mugshots« – whether the suspicion arouses a certain moment of prejudice against certain people. In her work, Taryn Simon made photographic portraits of these people at places which were relevant to the crime in some way or another. Sometimes at the scene of the crime, where the people involved had never been before, or, for example at the scene of the alibi. It is obvious from the photographs that they were posed. One can see immediately that something is wrong here. They are not snapshots, and they aren’t photos that might be able to prove anything. I am interested in what new form of photographic presentation the artist finds in view of the fact that it was photographs which played such an important role in sentencing these people and had such a lasting impact on their lives. The question about this artistic visual practice is linked with my previous work – the idea of an alternative kind of visualisation. How can art point out problems of contemporary visual practice by offering a new form of visualisation?

*Franziska Wegener: What structures, expertise and know-how does the project offer you in order to drive your task forward?*

Nina Kathalin Bergeest: I am given a lot of freedom in my work. Of course I can turn to Sophia at any time, something which is certain to be particularly helpful with regard to the gender discussion and bibliography tips. Our theme class is to hold a colloquium in the winter semester in which we will all report on the current state of our respective projects and will have the opportunity to discuss them.

*Franziska Wegener: What direction do you want to take after you have finished this project?*

Nina Kathalin Bergeest: Ever since second semester, my wish to remain in a university environment has been consolidated. So I want to do a PhD after obtaining my Master's degree. I have managed to get a good insight thanks to the experience I gained as tutor at our institute and my experience as assistant at Professor Klönk's department. I very much enjoy teaching and it is an important element for me. It is a great enrichment for me now to get to know the Cluster and its varied structures in more depth. I find the interdisciplinary approach very interesting, just as I greatly value the scientific-visual aspects of our institute. I find it great that I am being allowed to participate in the wider aspects of »Image and Gestaltung«.

The interview was conducted by



*Franziska Wegener*  
Student Assistant - Public Relations and Fundraising

## Ben Schumacher *Information Technology for Facial Recognition*

The theme class *Image Knowledge Gestaltung* specifies its research projects in more detail. CZ# held an interview with scholarship holder Ben Schumacher on the application of information technology and algorithmics in facial recognition systems.

*Claudia Lamas Cornejo: What are you studying at the Humboldt Universität?*

Ben Schumacher: I am studying information technology at Adlershof as my main subject and have chosen Social Sciences in Mitte as my subsidiary and am now in my fifth semester.

*Claudia Lamas Cornejo: What research topic did you offer for the job here at the Interdisciplinary Laboratory »Image Knowledge Gestaltung«?*

Ben Schumacher: I applied to take part in the base project »The Epistemic Reverse Side of Instrumental Images«. My idea was to link the topic »facial recognition« to information technology and algorithmics. The basic question of my research is: What possibilities are there of recognising a face? I searched for features which can be easily measured in every person's face. This resulted in the approach of taking the position of the pupils as the initial reference point for facial recognition.

*Claudia Lamas Cornejo: What exactly do you intend to examine?*

Ben Schumacher: In the meantime I have enhanced my initial idea – the idea with which I applied for the Cluster. In the current project, we are using software which allows us to create a 3D model of a face on the basis of two photographs. One of the facial features required is the distance between the eyes. However, the fact that we only have two photographs is a problem. In future, this problem is to be solved by taking several photos in series in order to make changes in the three-dimensional face visible. In this way we can recognise emotions, for example. This is the original idea of the project: »FACS«, a coding system for facial information which measures the number and tension of muscles in the human face has been around for 40 years now.



Ben Schumacher and a 3D model of a bust. Photo: Claudia Lamas Cornejo | BWG 2015.

*Claudia Lamas Cornejo: It is used to define an emotion?*

Ben Schumacher: Yes, but this approach is fairly outdated now. Therefore, in our project we are trying to find a new approach in which the face is first reconstructed three-dimensionally and then searched for a metric form which allows more effective measurement of emotions.

*Claudia Lamas Cornejo: Does the age of the face matter?*

Ben Schumacher: No, it doesn't. The only things which are currently causing a lot of trouble are beards (he laughs). Our cameras interpret them as skin. There is some amount of confusion when photographs are taken of a person with a full beard, since the face becomes wider at the bottom than at the top in the three-dimensional image.

*Claudia Lamas Cornejo: The camera isn't able distinguish hair from skin?*

Ben Schumacher: No, it can't distinguish hair from skin since it only detects strong contrasts. A dark object is detected as a surface.

*Claudia Lamas Cornejo: Whose faces are you using? Who are your guinea pigs?*

Ben Schumacher: To begin with, we used the faces which we can easily get at: our own. During last year's Night of Sciences there was a room at the Zuse Institute, which is hosting this part of the project, where visitors could volunteer to have their photographs taken. Of course they all had to sign a declaration of consent allowing us to use their photographs for the project. As a little thank-you present, each volunteer was given a print of his or her face.

*Claudia Lamas Cornejo: Do you intend to continue working on this idea after your year as Germany scholarship holder or after you have finished your course of studies?*

Ben Schumacher: I see the scholarship as an opportunity to carry out research in a new field and to work in an interdisciplinary environment. For example, it is a completely new experience for me to work alongside humanities students. I started studying directly after high-school. At the Adlershof campus, the natural science students are very much isolated from the other students.

The first challenge for me is to hold a conversation with scientists of other disciplines on a non-technical level, unlike conversations held between computer specialists. Furthermore, the Cluster, with its unusual and alternative interior design where you don't have your own fixed room but have to find a new place to do your work every day is a unique experience for me.

Following my research on facial recognition I would like to do research on image recognition. *Machine Learning*. You show the computer a picture of a frog and it is supposed to recognise this as frog on the basis of its own experience. That is what I consider to be a challenge.

*Claudia Lamas Cornejo: Many thanks for talking to us.*

The interview was conducted by



*Claudia Lamas Cornejo*  
Head of Public Relations and Fundraising

## Roland Bolz *Handbook of Obstacles*

Roland Bolz joined the theme class Image Knowledge Gestaltung in April 2015 as a Germany Scholarship holder. His research in the base project »Experiment & Observation« is concerned with the systematic diagrammatic representation of obstacles.

*Franziska Wegener: How did you arrive at the Interdisciplinary Laboratory?*

Roland Bolz: Peter Koval invited submissions for a competition, and I entered with a short essay on the project »The Encyclopedia of Obstacles«. To me, the idea is very exciting: tackling a question not from a disciplinary perspective but rather taking a striking keyword as the starting point. After this, we met regularly for open brainstorming sessions and in a reading circle, where we started by gathering materials and inspiration. I also brought along some texts on phenomenology, for example, Heidegger's famous analysis of »Zeug« (tools), and examined the etymology of the word »obstacle«. We also looked at design, architecture, science studies and sociology – with the question always being how obstacles appear in those fields, whether it is in a tangible or abstract way and how they are overcome or designed. In addition, we have started to have conversations on this topic with thinkers like Bernard Stiegler who lead the debate. We are now at a stage where we are discussing in greater depth how to implement the project in practical terms.

*Franziska Wegener: What comes to your mind when you hear the keyword »obstacle«?*

Roland Bolz: There is an excellent definition of »hindern« (to impede) in the Grimm brothers' German dictionary, which should be mentioned here. It reads: »*hindern*, in contrast to *fördern* (to encourage, support), means, in the most general sense, to put back, to take back, and this appears in different shades.« This definition should not be read as meaning that an obstacle merely opposes the purposeful, forward motion of a thing. Rather in a very general sense, every phenomenon is always something that »comes to light«: The ancient Greek word »*phainesthai*« means nothing other than *to show oneself, to appear* – and hence: *to appear in any shade*. The appearance of every phenomenon can be hindered. It is not just mankind that is confronted with obstacles. The semantic field of »*Hindernis*« (obstacle) and »*hindern*« has a very definite top-



Germany Scholarship holder Roland Bolz has been researching in the Cluster since April 2015. He prefers to carry out his daily work in the Experimental Zone. Photos: Franziska Wegener | BWG 2015.

ological and visual character because an obstacle is often something that you had not »seen« before. What's more, the German word »*Obstakel*« (obstacle) – etymology: to stand before – is always a place of despair where, after

some hesitation, a decision may be required. A previously set objective suddenly appears much further away. The many topological resonances that obstacles have raised the question of whether obstacles can be systematically diagrammatised. To give a few practical examples:

Example 1: A designer designs a little door for a cupboard. S/he asks herself or himself the question: should the cupboard invite the user to interact frequently with the objects in the cupboard or forget about them while they are not in use? Should the cupboard be easy to access or consciously introduce a threshold or barrier in the living space? The designer finally designs a more or less penetrable obstacle; what's more, this obstacle is a desired one. The »tranquillity« of a space or its »purposiveness« is an effect of the design of obstacles, a process that is conscious to a greater or a lesser degree.

Example 2: In research in the natural sciences, theories are tested in experiments. Here obstacles play a specific role in two ways. Firstly, an established theory that contains imprecisions, simplifications or errors is always an *epistemological obstacle* (Gaston Bachelard) for scientists. Preconceptions of things determine how empirical data is interpreted to such a degree that discrepancies between the data and established theories are often overlooked at first. Bachelard found that the history of science can be described as the history of identifying and overcoming epistemological obstacles. He set science studies the task of classifying epistemological obstacles. In addition to this, obstacles are encountered in a very practical sense in nature research: the *design of experiments*. Here it is generally a question of very purposefully introducing certain designed obstacles in an otherwise uninfluenced environment and observing whether this produces effects that prove or disprove a hypothesis. And the stage of disproving hypotheses can also be seen as an interaction with an obstacle. The data that disproves the theory is nothing other than an obstacle to the theory's universal applicability.

Example 3: We encounter obstacles constantly in daily life, obstacles that have an important function in opening up the world to us. Heidegger's analysis of the everyday, pretheoretical handling of »Zeug« (tools, materials, equipment) clearly shows this. He asks: how does the world of objects appear to us at first and most frequently? As »Zeug« that is ready-to-hand – as things that can be used and have their own more or less clear place in a local context. For instance, you first encounter a hammer as a purposeful tool that you pick up in the workshop to hammer

with. As such, the hammer points to the wood and nails. But this environment only lights up, as Heidegger would say, as a *connectedness* when it is destroyed. We only consider the hammer's role when we are hammering when an obstacle prevents us from continuing to hammer. When the hammer is broken or missing, or when something else stands in our path. As Heidegger argued, the real, structural-functional place of the hammer is only visible when it is disturbed. In this way, obstacles contribute significantly to opening up the human environment. Consequently, obstacles are significant in a pretheoretical and everyday context.

Example 4: What is politics actually? Couldn't we assume that this sphere too is not just concerned with a form of overcoming obstacles but also with a form of designing obstacles? Politics is never simply directly tackling random challenges; it is always an argument with the others about identifying and framing problems. This claim could be supported by arguing that politics only disappears at the very moment when the argument about the design and interpretation of obstacles or challenges disappears.

As the above examples indicate, the issue of obstacles can be applied very broadly. There is no direct answer to the question of which methodology or discipline the field of obstacles can be explored. The most important question that our project asks is perhaps therefore how the obstacle can be analysed *in abstracto* in such a way that the insights gained can be useful for the investigation of *actual* obstacles.

*Franziska Wegener: What role does the French philosopher Alain Badiou play in your work?*

Roland Bolz: I see myself as a discipline of Alain Badiou. I came across his writings about two years ago and have studied them with great enthusiasm since then. For me, he represents the somewhat outmoded philosophical position that a person, although this person in a certain sense is only a body, can also be a »fragment of an eternal truth«, as Badiou would put it. That does not happen when you are studying philosophy, but when you encounter a scientific paradigm shift, an aesthetic avant-garde or a political revolution – or you fall in love. Interestingly, this line of thought can be directly linked back to obstacles. Badiou sees encountering »truth procedures« not as a purely chance finding of new possibilities. Rather, a person in this constellation is imprisoned by an obstacle of a higher order. »I can't understand it yet although it ought to be possible.« »A new political freedom can be affirmed:

how can it be realised?» etc. These are questions that I find fascinating. Badiou gives me potential answers to the question of what a person is without simply referring back to the individual. He also gave me as a philosophy student a certain orientation in my subject.

*Franziska Wegener: In what kind of context would you be interested in concretising your project? What kind of results can we expect to see?*

Roland Bolz: We are in the process of editing an anthology that bears the provocative title of »Handbuch der Hindernisse« (The Handbook of Obstacles). In the anthology, the issue of designed obstacles does not only serve to challenge established design theories and epistemologies. We hope that we will succeed in seeing the book itself not just as an obstacle but in designing it as one too. In this way, we hope to make an exciting contribution to the development of the Cluster's own design-oriented theory. To this end we are organising a workshop in February. Our collaboration may also continue in the longer term.

*Franziska Wegener: What does the base project offer you in terms of structures, knowledge and expertise? How has your approach changed since you joined the base project?*

Roland Bolz: I was really enthusiastic about Image Knowledge Gestaltung right from the beginning. What makes the project different is very problem-oriented way that we work and that we have focused on concept building for a long time. This is the kind of work that I actually enjoy the most. Added to which, working in an interdisciplinary team is great. I have been working in the Experimental Zone every day for some time.

*Franziska Wegener: Which direction do you see yourself taking next?*

Roland Bolz: My plan is to start a PhD in philosophy in 2016 – diving into the depths with Hegel. And the issue of obstacles will continue to play a part in my research.

The interview was conducted by



*Franziska Wegener*  
Student Assistant – Public Relations & Fundraising

## Nicolas Morgenroth *Community-Supported Agriculture in Berlin*



CZ# met Nicolas Morgenroth in Prinzessinnengärten, an important location for networking and spreading ideas about sustainable urban agriculture. Photo 1: Franziska Wegener | BWG 2015, Photo 2: <http://prinzessinnengarten.net/>.

Since April 2015, Nicolas Morgenroth has been researching alternative forms of food production in Berlin in the Interdisciplinary Laboratory.

*Franziska Wegener: You joined the Cluster in April 2015, and you are conducting research in the base project »The Anthropocene Kitchen«. How did you get started in the Cluster and what were the first steps that you took here in the Interdisciplinary Laboratory?*

Nicolas Morgenroth: At the start, there was an induction event with a tour of the Cluster and a meeting with the base project, where I presented my project and was able to get feedback from all the members. Since then I have been very busy preparing my research. I am especially interested in the social processes that are located upstream of the Anthropocene kitchen. Where does food come from, how is its production organised? In my view, a sustainable kitchen as a crystallisation point entails looking at food production and food distribution. I am intensively researching the kinds of approaches and projects in Berlin that are attempting to find a different way to organise food production than through global chain stores and supermarkets. My first objective, which I have almost achieved, is to obtain an overview and create a typology of all the projects that are moving in this direction. That is why I suggested Prinzessinnengärten as the location for this interview. This initiative may not be a significant part of food

production, but it contributes a great deal to the networking of a large number of projects and to spreading the idea of sustainable urban agriculture. The next step is to go to the local group meeting of the Sterngartenodyssee. To the best of my knowledge, it is the largest community-supported agriculture group in Berlin, and it is currently trying to establish a foothold in the Wedding district of the city as well. My idea is to use the Sterngartenodyssee primarily as a point of access to community-supported agriculture and to my research field.

*Franziska Wegener: What is your specific research question and what are the research methods that you want to apply?*

Nicolas Morgenroth: The main question that I have set myself is the extent to which these projects can be generalised for a large city's entire food supply or whether they should instead be seen as niche projects whose practical relevance is limited to small groups of consumers. A further important question for me is the relationship between farmers and consumers. Is the distinction between producers and consumers dissolving or will it continue? A very important question for me is how negotiations between these two groups work when they are not organised through the market. This also raises the question of the extent to which the relationship between town and country is being redefined. These are the core questions that I want to explore through interviews, questionnaires and partici-

patory observation. What especially interests me about this environmental issue is this: I want to link the social sciences, which is where I come from, with the natural sciences and economics. That means collecting data: how much is produced, how much land area is needed, how many working hours actually go into it? With this data, I hope to be able to conduct an evaluation and to investigate the extent to which community-supported agriculture can be applied to an entire city.

*Franziska Wegener: How did you hear about the base project »The Anthropocene Kitchen«?*

Nicolas Morgenroth: It was the project's title, »The Anthropocene Kitchen«, that first caught my interest. I find the whole concept of the Anthropocene very exciting because it focuses attention on one thing: that mankind has the greatest influence on climate, ecosystems, the planet. What does that mean? Simply realising that »We are in the Anthropocene era« calls for the natural sciences and the social sciences to be brought together with much greater intensity. In my view, all areas of society urgently need to be transformed. Scientific studies are needed so that we can identify which direction we should head towards. But fundamentally, the transformation is a social one: consumer behaviour must change, for instance. And that is not an individual decision, but instead – and this is why I am especially interested in projects like community-supported agriculture – these are decisions about how to organise this transformation collectively. It is not a question of »Should I buy organic or not?«. It is a very important issue that calls for collective action and must not be reduced to the individual level. This is the part of the kitchen that interests me. The idea in »The Anthropocene Kitchen« is that the kitchen is a crystallisation point. When I saw the advertisement and the research issue about potential pioneers, which was very confidently worded, I realised that this was a unique opportunity to really focus on this issue outside of my studies. Unfortunately, only very few seminars on environmental issues are offered as part of courses. That is slowly starting to change ...

*Franziska Wegener: What format do you have in mind to present your results in?*

Nicolas Morgenroth: The transformation debate places a lot of emphasis on transmedia storytelling. This means that the pioneers tell their own story through different media and seek to change people through these stories. It is an idea that I want to apply when I present my results.

That means that the interviews will not just be used as transcripts. Instead, I will also use them to spread the stories. I would also like to create a poster that clearly shows what is going on in Berlin, how the different projects are linked to each other and the kind of umbrella organisations that exist. I am thinking of a big poster that gives the viewer a comprehensive overview ...

*Franziska Wegener: What are you thinking of doing after your Germany Scholarship?*

Nicolas Morgenroth: Firstly, I would like to find out whether there are opportunities to link my master's dissertation to research in the Cluster and expand on it. In the long term, I would like to continue to work in an academic context at the interface of the social sciences and the natural sciences, perhaps doing a PhD.

*Franziska Wegener: Thank you for talking to us.*

The interview was conducted by



*Franziska Wegener*  
Student Assistant – Public Relations & Fundraising

## A Look Ahead

# PICTURING THE BODY IN THE LABORATORY

genesis and topicality of evidence-oriented imaging in institutions of the long 19th century and today

Conference | 6.–7.11.2015

> Interdisciplinary Laboratory, Humboldt-Universität zu Berlin, Sophienstr. 22a

> Lecture hall 2094 and Seminar room 2093, Main building, Unter den Linden 6

Registration until 25<sup>th</sup> of October > [fiona.franka.schmidt@hu-berlin.de](mailto:fiona.franka.schmidt@hu-berlin.de)

## Friday, November 6

### CULTURAL HISTORY OF SCIENCE ON TRACES OF THE BODY IN THE LAB AROUND 1900

> Interdisciplinary Laboratory, Sophienstr. 22a

10.00 Registration & Welcome

10.30 Keynote **Barbara Orland** (University of Basel)  
*Seeing the Building Blocks of the Human Body. The Biopolitics of Microphotography  
1840–1870*

#### PANEL 1

moderator: **Ann-Cathrin Drews** (HU Berlin/Image Knowledge Gestaltung)

11.40 **Bettina Bock von Wülfingen** (HU Berlin/Image Knowledge Gestaltung)  
*The New Cell Staining Techniques since the 1870s and their Role in Conceiving Sex/Gender  
in the Cell*

12.20 **Marietta Kesting** (HU Berlin/Image Knowledge Gestaltung)  
*Creating Photographic Identification*

#### PANEL 2

moderator: **Mark-Oliver Casper** (HU Berlin/Image Knowledge Gestaltung)

14.30 **Sophia Kunze** (HU Berlin/Image Knowledge Gestaltung)  
*Necessary Reduction of Complexity or Dubious Essentialisation? Reception of Natural  
Scientific Knowledge in the History of Arts*

15.10 **Wolfgang Schäffner** (HU Berlin/Image Knowledge Gestaltung)  
*Schreiber's Evidence*

15.50 **Bettina Uppenkamp** (Dresden University/Image Knowledge Gestaltung)  
*Evidence and Identification. On the History of the Fingerprint*

> Lecture Hall 2094, Main Building, Unter den Linden 6

19.00 Keynote **Peter Galison** (Harvard University)  
*The Conviction of Scientific Images*

## Saturday, November 7

### NATURAL SCIENCES AND LABORATORY TRACES TODAY

> Seminar Room 2093, Main Building, Unter den Linden 6

10.00 Keynote **Soraya de Chadarevian** (UCLA)  
»It is not enough, in order to understand the Book of Nature, to turn over the  
pages looking at the pictures. Painful though it may be, it will be necessary to learn  
to read the text.«  
*Visual Evidence in the Life Sciences, c. 1960*

#### PANEL 3

moderator: **Kathrin Friedrich** (HU Berlin/Image Knowledge Gestaltung)

11.00 **John Nyakatura** (HU Berlin/Image Knowledge Gestaltung)  
*Trace, Experiment, Inference: Images and the Generation of Knowledge in Paleobiology*

11.40 **Stefanie Reichelt** (Head of Light Microscopy, CRUK Cambridge Institute)  
*Interference and Intervention: the Duality of Light Microscopy*

12.20 **Thomas Stach** (HU Berlin/Image Knowledge Gestaltung)  
*Traces, Data, Facts: How Morphology Generates Evidence*

#### PANEL 4

moderator: **Markus Rautzenberg** (FU Berlin, mecs Lüneburg)

14.30 **Dieter Weiss** (University of Rostock)  
*Superresolution Microscopy and the Discovery of Nano-Machines in Living Cells*

15.10 **Anne Dippel** (HU Berlin/Image Knowledge Gestaltung, FSU Jena, Leuphana Lüneburg),  
**Lukas Mairhofer** (University of Vienna)  
*Believing the Pattern. A conversation on Traces in Physics*

[www.interdisciplinary-laboratory.hu-berlin.de/en](http://www.interdisciplinary-laboratory.hu-berlin.de/en)

## Jahrestagung des Interdisziplinären Labors *Bild Wissen Gestaltung*

Berlin-Brandenburgische Akademie der Wissenschaften  
Markgrafenstr. 38, 10117 Berlin

Um Anmeldung wird gebeten: [tinyurl.com/tagung2015](http://tinyurl.com/tagung2015)  
[www.interdisciplinary-laboratory.hu-berlin.de](http://www.interdisciplinary-laboratory.hu-berlin.de)

### 20. November 2015

10 Uhr **Begrüßung** Peter Frensch, Vizepräsident für Forschung der Humboldt-Universität zu Berlin  
**Einführung** Wolfgang Schäffner

### 10.30 Uhr **Bild & Handlung**

Einführung Matthias Bruhn & John Nyakatura

John Nyakatura **Rekonstruierte Bewegung: Bild und Handlung am Beispiel der biologischen Bewegungsforschung**

Martin Grewe & Stefan Zachow **Spuren der Bewegungsfreiheit – Auf der Suche nach Modellparametern**

Erika Holter & Susanne Muth **Antike Bewegungsmuster: Der gestaltete Boden**

Maria Keil & Anika Schultz **Bewegungsapparat Krankenhaus**

### 14.30 Uhr **Formprozess & Modellierung**

Einführung Claudia Blümle & Gerhard Scholtz

Thomas Macho **Der Stachel: Zur Temporalität von Befehlen**

Richard Weinkamer **Modelle der Bewegung – Individuell versus kollektiv**

Günther Jirikowski **Gestaltungsprozesse in der Natur? Genetische und genealogische Aspekte der Formbildung am Beispiel der Krebstiere**

Sabine Thümmeler **Formwille. Pflanzenstudien zwischen Objekt und Verklärung**

Torsten Schubert **Vorwissen und die Kategorisierung komplexer Objekte**

Karin Krauthausen & Samo Tomšič **Die Wissenschaft vergisst**

### 21. November 2015

10 Uhr **Einführung** Horst Bredekamp

### 10.15 Uhr **Active Matter**

Einführung Peter Fratzl & Christian Kassung

Regine Hengge **Vom genetischen über den materiellen Code zur makroskopischen Form in bakteriellen Biofilmen**

Peter Fratzl **Intrinsisch codierte Materialien**

Michael Friedman & Angelika Seppi **Falte und Faltung: Zwischen analogem und digitalem Code**

Sebastian Schwesinger **Filter Struktur Funktion. Zur Codierung klanglicher Gefüge**

### 14.15 Uhr **Architekturen des Wissens**

Einführung Wolfgang Schäffner

Finn Geipel & Henrike Rabe **Von Flüssen, Flows und Verbindungen. Dynamische Prozesse entwerfen**

Anmeldung



Gefördert durch die

**DFG**

## Cluster Exhibition 30 September 2016 – 8 January 2017



Bild

Wissen

Gestaltung

Ein Interdisziplinäres Labor



# GESTALTEN

Eine Ausstellung des Exzellenzclusters *Bild Wissen Gestaltung*. Ein Interdisziplinäres Labor  
Humboldt-Universität zu Berlin  
[www.interdisciplinary-laboratory.hu-berlin.de](http://www.interdisciplinary-laboratory.hu-berlin.de)

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**SAVE THE DATE**  
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