

# MAGAZINE

of Heinrich Heine University Düsseldorf

Space – an infinite  
surface of projection



HAPPY BIRTHDAY

60th anniversary  
of HHU

GUEST PROFESSORSHIP

Dr h.c. mult.  
Charlotte Knobloch

LAW

Even Lady Justice  
can be mistaken

hhu.



PHOTO HHU/ANDREAS ENDERMANN

The largest lecture theatre at HHU was packed for the two extremely well received lectures given by Heinrich Heine Guest Professor Charlotte Knobloch. In an interview, she talks about her visit to Düsseldorf and above all her views on the current situation in Germany.

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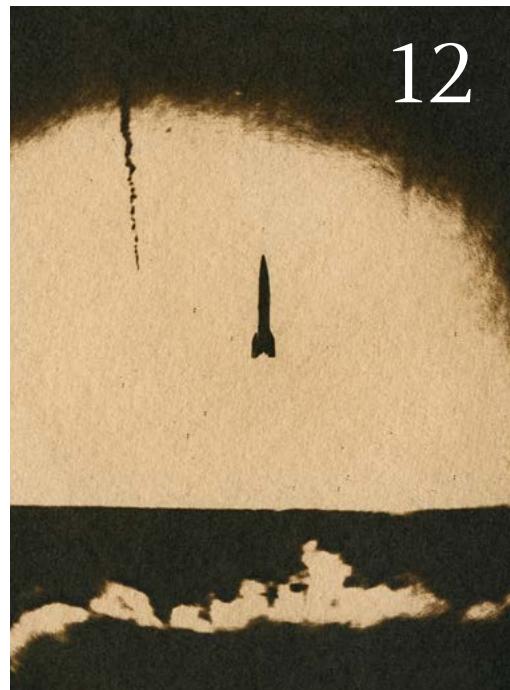


PHOTO LEWIS BUSH – DEPRAVITY'S RAINBOW

Space has always been a place for the imagination, says Dr Jens Temmen. The American Studies scholar examines the cultural assumptions and literary representations of space research.

# Outlook



PHOTO LUKAS SCHULZE

Dear Reader,

Space is a fascinating topic for science and research and, as we can all see, it is now becoming increasingly present in society, culture and politics. As a member of the European university alliance UNIVERSEH, HHU is part of a collaboration network on the topic of space, whereby it is crossing borders in several respects. Not only does the network unite universities from seven European countries but, as the cover story in this issue of "HHU Magazine" will show you, the topic also raises research questions in more unexpected ways, for instance, in cultural studies and medical research.

With space missions and moon landings dating back particularly to the 1960s, they are of a similar age to HHU, which this year celebrates its 60th birthday. On 16 November 1965, the former Medical Academy became the University of Düsseldorf and since then has developed into a full university with five faculties in total. During that time, it has also evolved into a Citizens' University, which actively fosters exchange between science and society, and where science communication is intended to oppose discrimination, polarisation and disinformation. As our President Professor Anja Steinbeck states in this issue: "The University is not an ivory tower. It belongs at the heart of society", and Heinrich Heine Guest Professor Charlotte Knobloch highlights in her interview that it is an important place for dialogue and debate, standing against simplification and a lack of willingness to compromise. Further research you can discover in this issue is on the psychology of music during birth, on documented errors in criminal justice and on the benefits of sustainable management. I wish you an enjoyable read!

With best regards,

Professor Dr Heidrun Dorgeloh  
Vice President for University Culture and International Relations

Heinrich Heine Guest Professorship

# Between real enemies and false friends

Dr h.c. mult. Charlotte Knobloch visited HHU as the Heinrich Heine Guest Professor in October 2024 and February 2025. The former President of the Central Council of Jews in Germany asked “Arrived in Germany?” in her first, extremely well received lecture, before inviting four personalities from science and society to a panel discussion at the second event. The MAGAZINE met up with her afterwards for an interview.





The sociologist Professor Dr Armin Nassehi from Ludwig Maximilian University (LMU) in Munich, Hetty Berg, Director of the Jewish Museum Berlin, and Philipp Peyman Engel, Editor-in-Chief of the Jewish weekly newspaper *"Jüdische Allgemeine"* (right), in discussion with Charlotte Knobloch. Monty Ott (centre) took on the moderation.

INTERVIEW BY VICTORIA MEINSCHÄFER AND ACHIM ZOLKE

**The Heinrich Heine Guest Professorship has led you from Munich to Düsseldorf. What did you associate with the city before taking up your Guest Professorship here?**

Düsseldorf is of course the city of Heinrich Heine – and that is one reason why I considered the Guest Professorship at this university to be such a great honour. And then the name of Düsseldorf is also closely associated with Paul Spiegel sel. A., the former President of the Central Council of Jews in Germany and long-term head of the Jewish Community in Düsseldorf, which is so rich in tradition.

**As you write in *"In Deutschland angekommen"* ("Arrived in Germany"), Heine is your favourite poet. When and how did you get to know him? Is there a poem, which has accompanied you throughout your life and you still enjoy reading?**

The *"Nachtgedanken"* ("Night Thoughts") have indeed been part of my life for many decades, although I cannot say how long exactly. But I also love the light, irreverent poems such as *"Das Fräulein stand am Meere"* ("The young lady stood by the sea") and – even though I am fond of donkeys as animals – *"Die Wahlesel"* ("The electorate donkeys"). And of course, *"Deutschland. Ein Wintermärchen"* ("Germany. A Winter's Tale"). Wonderful and always worth reading again.

**In your book, you quote the first dark lines of Night Thoughts and Monty Ott also made reference to them during the second event. Yet, the poem ends positively;**

carefree French daylight transforms the mood, German concerns are dismissed with a smile. How do you view the current situation in Germany? Where do you see hope for our country, which is not geographically split as it was in Heine's time, but rather politically fragmented? I am deeply concerned about the situation in Germany – we also spoke about that. And unfortunately, nothing about it can be dismissed with a smile. But of course, our nearest and dearest, our families and friends keep us going – and we need carefree, untroubled moments from which we can draw strength. Strength to stand up for mutual respect. That is the biggest task facing not only politicians, but also all of us as a society.

**In the first lecture, you said that anti-Semitism not only harms Jewish life, but also our democracy. How does this interrelationship arise in concrete terms?**

Anti-Semitism – I prefer to use the clear term 'hatred of Jews' – starts with Jewish people, but in my experience never ends with them. A state and a society, which allow one part of the whole to be worth less than others, in which one group has fewer or no rights, are no longer

**"Anti-Semitism starts with Jewish people, but in my experience never ends with them."**

Dr h.c. Charlotte Knobloch — Heinrich Heine Guest Professor



President Steinbeck presented the Heinrich Heine Guest Professor with a certificate at the end of the event.

democratic. Fundamental principles of our democratic rule of law are that everyone has the same rights and obligations, that everyone is equal before the law and above all, that their human dignity is inviolable.

Communities in which hatred of Jews is widespread also discriminate against other groups, which do not fit in with the worldview of their ideology – above all homosexuals, Sinti and Roma, people with disabilities, people with a different skin colour, a different religion, who were born in a different country, who have different political views. And on top of that, all these communities have a massive problem with equality for women. We can see that in all autocratic states and/or states ruled by extremist religions. Where Jewish people can live safely and freely, so can everyone else. Democracy is the only form of political system, which guarantees that in the constitution. Unfortunately, there are also significant issues in practice here in this country.

**As you said at the second event, the Jewish community – which finds itself standing between real enemies and false friends – needs protection like never before. The real enemies are easy to identify, but who are the false friends?**

They are people and groups who, because of their Islamophobia, act as though they are protectors of the Jews and the state of Israel. They instrumentalise, even abuse Jewish people for a purpose, which ultimately threatens them themselves: The racial and nationalist ideology of a homogenous society.

**You pointed out, quite rightly in my opinion, that it is not the AfD as such that is to blame for the current**

**“Simplification and a lack of willingness to compromise will not help us move forward. They are only making the situation worse.”**

Dr h.c. Charlotte Knobloch — Heinrich Heine Guest Professor

**situation in Germany, but rather – literally – that their voters have got us into this mess. How can the now divided German society escape this predicament again? What can we do to bring an end to this mutual blaming? Are we even still capable of starting a dialogue? Or is there a point where it is no longer possible to do so?** That is the big question and challenge. Unfortunately, our country has never had a particularly strong culture of constructive debate. Yet, this is exactly what is needed in order to discuss the complex problems we are currently facing in a differentiated way and find appropriate solutions together. Simplification and a lack of willingness to compromise will not help us move forward. They are only making the situation worse – as we are currently experiencing. And so it is all the more important that the democratic parties debate constructively with each other. We do not need any showcase speeches, but rather serious debates. And we all need to leave the digital bubble and spend more time in analogue situations again – listening and talking face to face. That is still the most effective situation in which to communicate.

60

1965–2025

Six decades of HHU

# The University and its President in their anniversary year

BY CAROLIN GRAPE AND ACHIM ZOLKE

The founding decree was issued by the State Government of North Rhine-Westphalia on 16 November 1965. The University of Düsseldorf is now celebrating its 60th anniversary this year and thus a milestone, which not only marks an eventful history, but also points to forward-looking development. President Professor Dr Anja Steinbeck is also celebrating an anniversary: For ten years now, she has led the University through a time of great challenges and strategic realignment.

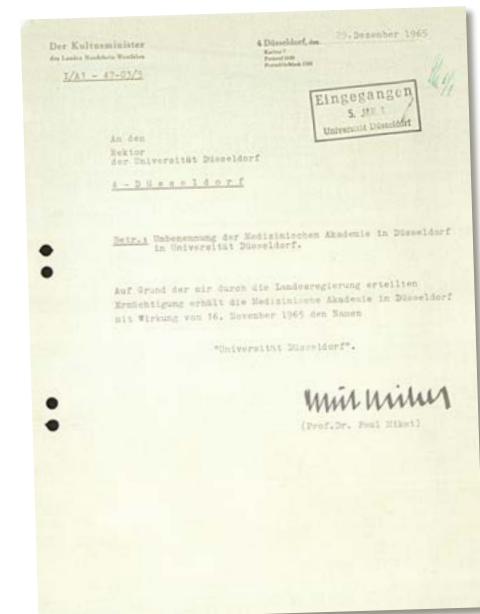
Topping out ceremony for the institute buildings of the Faculty of Mathematics and Natural Sciences (1974)



Her duty has been to define a strategic course – for an increase in interdisciplinary research, new study programmes and further internationalisation of the location. New focuses are being established in the areas of artificial intelligence and sustainability. According to the renowned CHE University Ranking, student satisfaction levels at HHU are above average. “HHU offers its students very good conditions and an excellent education. We align our offers to the needs of students,” says the President.

Of the past ten years, the last five in particular have defined her term of office: The coronavirus pandemic necessitated quick digital solutions and a switch to online teaching and exams, the war in Ukraine has raised new questions about solidarity, the energy crisis forced the implementation of sustainable strategies

President Steinbeck: “A discrimination-free space can only be achieved if everyone works together.”



Founding decree from November 1965

and the latest geopolitical tensions are having a direct impact on the University and campus, and require science diplomacy. “There have been no innocent sentences since then. Every remark, every silence is politically charged.”

One critical challenge for universities is dealing with anti-Semitism, Islamophobia and racism: “They can have no place on campus. We must defend our values and principles, even if we cannot stop everyone crossing the line,” says the President. “A discrimination-free space can only be achieved if everyone works together.”

## Varied programme for the anniversary year

Science communication plays a key role in the environment of these challenges: Citizens and the media need to be involved more – for a University, which not only conducts research but also communicates the expertise gained in that research. “The University is not an ivory tower. It belongs at the heart of society,” said President Steinbeck at her 2025 New Year Reception. And: “Science will only gain trust and acceptance when it explains what it does.”

The 2025 anniversary year offers many opportunities to celebrate this focus on dialogue. Highlights of the programme include campus exhibitions, guided laboratory tours, special science panel discussions at the *Haus der Universität* (“University House”) or a Q&A session with the author of the HHU novel *“Identitti”*,

“The University is not an ivory tower. It belongs at the heart of society.”

Professor Anja Steinbeck — President

Mithu Sanyal. The HHU novel is currently being filmed on campus, as well as at other locations. One very special and successful highlight was already showcased on the streets of the state capital in March: a float in the Carnival Monday parade designed by Jacques Tilly to mark the anniversary of the University – complete with the President and cheering HHU members on the float and marching alongside, all getting into the carnival spirit.

## The University as a reliable source of credible information

However, despite the celebratory mood, Professor Steinbeck views this interplay of academic work, teaching and transfer to society against a serious background, as this mission of HHU “not only strengthens peoples’



Construction site for lecture theatre 3A

understanding of science, but also promotes dialogue and thus trust in scientific work, which influences all our lives on a daily basis. And now, in times of sweeping disinformation, we feel a strong obligation to act as a reliable source of trustworthy information.”

In times of social polarisation and endorsement of right-wing extremism, locations for fact-based dialogue are essential. With its clear commitment to being a “citizens’ university”, HHU aims to remain exactly that: an open forum for knowledge, discussion and shaping the future. Anja Steinbeck emphasises: “We understand it as our duty, alongside research and teaching, to share our findings in such a way that they become tangible. Science may not exist detached from society.”

### → MORE INFORMATION

University history and anniversary programme (German only):  
[www.hhu.de/60jahre](http://www.hhu.de/60jahre)



PHOTO IVO MAYR



Construction of the domed greenhouse in the Botanical Garden

PHOTOS ARCHIVE HHU

HHU psychologist researches the topics of music and birth



# Gentle musical accompaniment to labour

BY VICTORIA MEINSCHÄFER

It is widely assumed that music increases well-being during pregnancy and birth. However, the psychologist PD Dr Nora Schaal (Chair of Cognitive Psychology) has taken this assumption further and examined the effects of music in the antepartum phase in a number of studies. The result: "Music can represent a low-cost and effective supplementary intervention in obstetric medicine to help reduce anxiety and stress for women, improve well-being and strengthen the bond between mother and child."

**I**t has already been proven that playing music before or during various medical procedures such as root canal treatment, colonoscopies or heart surgery can reduce anxiety, stress and pain. However, the available data on the positive effects of music during pregnancy and birth are minimal and heterogeneous, so Schaal and her colleagues collaborated with the women's clinic (Director: Professor Dr Tanja Fehm) at University Hospital Düsseldorf for their studies. Expectant mothers were offered different musical options for the various studies. "In the MUSICA study (music and singing during pregnancy) for example, we examined the influence of interventions involving singing or music during pregnancy on the well-being of the mother and her bond with the child," explains the psychologist.

One group of the women participated in a music intervention session and were then given a CD and asked to listen to the music on it for 20 minutes every day. The other group learned to sing to their unborn babies in two to four sessions with a music therapist. They were also asked to spend around 20 minutes a day on a musical activity at home. In order to examine the direct effect of the interventions, saliva samples were taken from the women before and after the music/singing intervention in order to determine the cortisol values as a stress marker. The women were also asked about their emotional state before and after the interventions. Significant objective and subjective effects could be observed: "The cortisol level fell by 0.6 nmol/l in the women in the music group and by as much as 1.5 nmol/l in the women who had been singing. Both interventions also had a significant effect on the perceived emotional valence, with the women reporting more positive emotions after the intervention."

## Singing has a greater effect

The music and singing interventions thus had direct positive effects on saliva cortisol levels and emotional valence. It is also worthy of note that "the singing intervention had a greater effect," says Schaal. "In addition, we were able to identify longer-term positive effects on the perceived bond with the child and maternal self-esteem. All effects were greater in those mothers who had been singing."

Other studies produced similarly positive results. The SAMBA study (caesarean section and the effects of accompanying music therapy on anxiolysis) involving 304 women examined how a music intervention during a caesarean section operation affected the anxiety and stress levels of the expectant mothers. Around 30% of all births



PHOTO CHRISTOPH KAWAN

PD Dr Nora Schaal is examining the effect of music during pregnancy and birth.

in Germany are by caesarean section and, even though this is a routine operation for medical staff, many women still experience high levels of anxiety and stress. Women are usually given a spinal anaesthetic and, in the study, this was supplemented by music of the woman's choice. "The majority of the women chose classical music," notes Nora Schaal, as it is perceived as particularly calming. The results of the study were convincing: "We were able to show that the women in the music group were less anxious immediately after the operation as well as two hours later, and that the music also had a positive effect on cortisol levels in their saliva. In addition, the patients found the music calming and very pleasant, with 96% stating that they would like to listen to music again in the event of a further caesarean section," says Schaal. "We presume that the music suppresses the activation of the sympathetic nervous system and thus also reduces adrenal cortex activity." Furthermore, it was established that the systolic blood pressure and heart rate were lower in the group, which had listened to music at the start of the operation.

There have been few studies to date, which have addressed the question of why music has such a positive effect. Nora Schaal surmises that it is probably due to the natural response to musical sounds. "If played in appropriate harmonies, musical sounds affect the limbic system, i.e. where emotions arise." As this is also where pain sensations originate, it is conceivable that pain-transmitting hormones are repressed by the release of pain-controlling beta-endorphins. Gentle or cheerful sounds also facilitate the release of noradrenaline, which in turn acts against the stress hormone cortisol. "Even though further research is needed into the precise mechanisms of action, music has become an integral element in the delivery suite at the University Hospital," as head midwife Sandra Persaud and senior physician Dr Carsten Hagenbeck are delighted to report.

# Space – an infinite surface of projection

Cultural science perspectives  
on space research

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BY VICTORIA MEINSCHÄFER

If something is really complicated, it is referred to as “rocket science”. Space research is quite definitely rocket science – highly complex and demanding in many different ways, as Dr Jens Temmen explains. The assistant professor from the Department of American Studies examines the cultural assumptions and literary representations of space research.

# S

pace has always been a place for the imagination, a place for projection,” Temmen argues. However, what people project onto space varies widely, depending on the cultural context. Very few people are aware that our western perception of space is not shared throughout the world. Yet, cultural contexts shape how people perceive outer space and thus also the space sciences. The research of American Studies scholar Temmen focuses on a specifically US-American perception of space in literature, film and the arts. His work not only takes into account science fiction texts, as you would expect, but also non-fiction texts written by scientists or astronomers. In these books,

A cultural background is involved surprisingly often

the authors not only present the technology in a (popular) science style, but also lay out their understanding of how space research should be conducted. More often than not, their rationale is not solely based on science, but also on cultural constructs and stories.

In the course of the analysis, it thus becomes clear that all space research is based on a context-specific perception of outer space. Temmen illustrates the extent to which space researchers are influenced by their own worldview by means of an example from the anthropologist William Lempert from Bowdoin College (USA) who analysed the US SETI programme (Search for Extra-Terrestrial Intelligence): The aim of this programme is to detect audio signals from intelligent life in space. Giant satellite dishes record sounds from outer space and search for patterns in them. “This is because it is assumed that intelligent life in space sends out radio signals in the same way that we do,” says Temmen. “The implicit assumption is therefore:

“In the US, outer space is primarily seen as a space of solution, even of salvation.”

Dr Jens Temmen — American Studies expert

The crew of Apollo 1 praying before setting off on the mission. They seem to be aware of the technical problems and that there is little consideration for their safety.



PHOTO LEWIS BUSH - DEPRAVITY'S RAINBOW

Bezos' New Glenn ready to blast off into space. Jeff Bezos and Elon Musk are the two most well-known figures in the new private space industry – and they have changed space travel.



PHOTO PICTURE ALLIANCE / COVER IMAGES

All intelligent life looks beyond its own planet. All life-forms seek technological progress and expansion in the same way as humans do." However, that is a very western view of intelligent life. To formulate it in an old-fashioned way, expansion – "colonialisation" – is a notion, which the West has shaped and, which also shapes the West. As a perception of intelligent life, it is doubly exclusive: On the one hand, it excludes other cultures on Earth, such as Indigenous cultures, which do not strive for expansion, from the category "intelligent life". A ridiculous idea – after all, no-one would

say that e.g. the Aborigines, whose culture stretches back approx. 65 millennia, are not intelligent. And intelligent life in space, which does not desire expansion, is also excluded here. "The culture-specific assumption of how intelligent life behaves is therefore the foundation for this research programme – and that in turn clearly means: Space research is not free of cultural influence."

"In the US-American context, outer space is primarily imagined as a space of solution, even of salvation," states Dr Jens Temmen, "which means there is a



The ISS is a symbol of the very short phase of international collaboration in space. Who knows what the future holds for the collaboration?

belief that solutions for humanity's problems can be found there and above all that it is a place for self-actualisation for American identity.' The current renaissance in space research is aimed at claiming outer space, exploiting it, extracting its resources and ultimately occupying it. This is not only spurred by state actors, but also by private entrepreneurs such as Elon Musk or Jeff Bezos, who see opportunities to expand their businesses. Accordingly, they are – wittingly or unwittingly – perpetuating a tradition, which has shaped US national identity since the first white settlers arrived. Namely the image of a border – the so-called "frontier" – which needs to be overcome.

## Crossing frontiers

There are multiple strands to this narrative, which all go back to a 19th century narrative, which holds that civilisation had to be imposed on the wilderness of the American continent in order to form the US nation-state," says Temmen. As Kennedy said: "Space is the New Frontier." Temmen: "According to this perception, pushing back this frontier is what makes Americans Americans. There is no real need to be gender-inclusive here either as it is essentially the white heterosexual man who is overcoming these frontiers and imposing civilisation on the wilderness. And who – after cultivating the continent – is now moving on to the next wilderness.

**"There is more than one way to explore space and that is something we should teach future space researchers."**

Dr Jens Temmen — American Studies expert

As Temmen observes, the notion that the conquest of space follows a colonial logic is largely rejected in the space industry and sciences, basically because the perception that outer space represents a salvation space is so dominant. This perception is largely influenced by popular science fiction. "Star Trek", "Interstellar" – all these stories communicate that when humankind reaches space, a new phase of humanity begins. "It is almost magical," explains Temmen. "There will be no continuities, since – according to this narrative – space is completely different to everything else we

know." This logic dominates the majority of western space research and this in turn means that space as we see it is co-produced by technology, culture and science. However, Temmen cautions against oversimplifying: It is of course highly complex science that is being produced here, but the idea of expanding into space is not genuinely human, but rather genuinely western. "It is the way we treat territory."

## Making the dynamics and structures of power visible

"I am not against space research in itself, not at all," says Temmen. "As someone trained in cultural studies, I would just like to point out the extent to which research is shaped by culture. And I would like to make the dynamics of power visible and show how certain power structures are perpetuated." In order to make these power structures and the cultural bias of space research clear, a European "space research" study programme is to be created as part of UNIVERSEH, an EU initiative (see article on page 21). "There is more than one way to explore space and that is something we should teach future space researchers."

The private space industry is – according to Temmen – presenting itself directly as the remedy for the planetary crises of modern times, in particular climate change, and thus as inevitable and unavoidable. It is

therefore essential to take a critical look behind the façade of the private space industry. "If you look at Elon Musk's plans to colonise Mars or Jeff Bezos' plans for heavy industry in orbit, it quickly becomes clear that neither are interested in saving humankind, but rather in saving capitalism," says Temmen.

It is a cause for concern that the real benefit of space research is at risk of being glossed over by the narratives. The spectacular self-promotion of the private space industry makes it easy to forget that e.g. climate change can only be monitored via satellite technology. However, this is of little interest to the current space entrepreneurs, as the real goal is: Humankind must leave Earth.

The colonial influence on this goal is also clearly reflected in the locations of rocket launch sites. It is indisputable that it makes most sense to build these sites where the conditions are most favourable, i.e. near the equator where the earth's rotation supports the acceleration of the rockets. For the US, this means in e.g. Florida and California, while Europe has its launch sites in French Guiana, a French overseas territory – in other words, a former colony. "These are all locations where Indigenous people and the local environment are often impacted by the rocket launches," says Temmen. "Since the claim is that outer space is for the benefit of all mankind, it is necessary to ask who is included in this conception of 'mankind'. Those who suffer as a consequence of the test are clearly left out of it. When Musk propagates the idea that space

NASA saw major expansion under President Johnson, but significant cuts in the extensive programme followed after the successful Apollo mission.

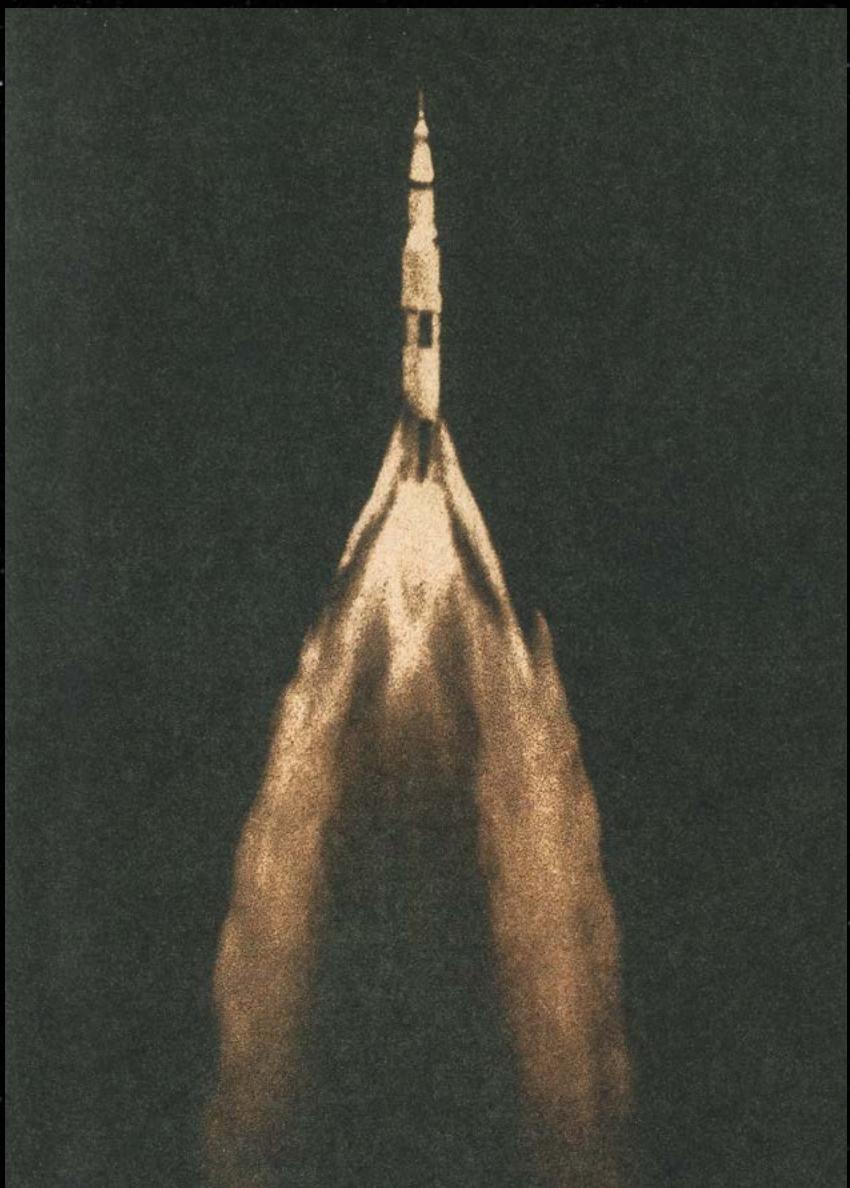


PHOTO LEWIS BUSH – DÉPRAVITY'S RAINBOW



Wernher von Braun, head engineer of the Nazi V2 rocket programme during the Third Reich and subsequently the Saturn V rockets, which powered the Apollo missions, during a flight on board a KC-135 reduced-gravity aircraft known internally at NASA as the "Vomit Comet". By flying steep ascents and descents, the aircraft generates short periods of weightlessness similar to that experienced in space. In an interview in 1969, Braun expressed the hope that he would be able to fly into space himself within a decade. This dream was never fulfilled and the simulation shown here remains the closest he came to fulfilling his lifelong wish to undertake an interplanetary journey.

In autumn 1968, a West German court ordered Wernher von Braun to give evidence against three former SS officers from the Mittelbau-Dora concentration camp in a criminal hearing. The concentration camp, which was under Braun's control, became the main production facility for the V2 rocket programme from 1944. Nevertheless, Braun did not attend the court in person. He gave his statement at the West German consulate in New Orleans.



The Saturn V rocket number SA-50 launched from Kennedy Space Center in Florida. The launch marked the start of the Apollo 11 mission to the moon.

(Image and text from the book "Depravity's Rainbow" by Lewis Bush).

Spacewalk at the ISS.



FOTO NASA

will save humankind but is not interested in those who are already suffering from climate change today, then the category 'humanity' that he refers to here is once again exclusive."

## Exhibition at the *Haus der Universität*

Within the framework of a seminar co-conducted by Temmen and Dr Claire Cazajous-Augé from the University of Toulouse, Temmen's research has contributed to an exhibition at the *Haus der Universität* ("University House"), which runs from 25 April to 2 June 2025. Students co-curated the exhibition, wrote their own texts about the images on display and created posters addressing the key questions from the seminar. The exhibition – entitled "An Infinitely Dark Legacy: The Fascist Roots of Modern Space Exploration" – displays photographs taken by the photographer Lewis Bush, who published a photographic anthology on the connections between the Apollo programme and the V2 rocket programme during the Third Reich several years ago.

"The book is a photographic journey through the early and contradictory history of modern space travel in the fascist German Reich (V2 programme) and in its technological reincarnation, NASA's Apollo programme. It is focused on the life story of Wernher von Braun, who as we know, was involved in both locations

and both programmes," says Temmen. "The photographs of these in part forgotten places highlight that, despite being vaguely part of general knowledge, the fascist roots of modern space exploration – especially in context of the current renaissance in space exploration via the private space industry – tend to be obscured and invisible."

**"Since the claim is that outer space is for the benefit of all mankind, it is necessary to ask who is included in this conception of 'mankind'."**

Dr Jens Temmen — American Studies expert

University Hospital examines health issues in microgravity

# Keeping an eye on space travel

Space travel is challenging and full of dangers in all respects. Professor Dr Dr Christian Jung, Dr Stephan Binneboessel, Dr Oliver Maier and Dr Kathrin Klein from the Department of Cardiology, Pneumology and Angiology at University Hospital Düsseldorf are examining the effects of weightlessness on the eyes. As it is difficult to realise examinations during periods in space, the researchers are using data gathered during parabolic flights conducted by the German Society for Aeronautics and Astronautics (*Deutsche Gesellschaft für Luft- und Raumfahrt – DGLR*). These data enable them to investigate the phenomenon known as SANS, which affects around half of all astronauts.

In parabolic flights, the aircraft describes a parabolic trajectory, creating a level of weightlessness similar to that in space for a number of seconds. During spaceflight, weightlessness causes numerous adaptations in the human organism, including effects on the circulatory system, altered cardiac output and a shift in body fluids toward the upper body and head. "Spaceflight-Associated Neuro-Ocular Syndrome (SANS) comprises a number of symptoms and diagnostic findings," reports Professor Christian Jung. "Impaired sharpness of close-up vision, scotoma and headaches can be observed. However, the mechanisms of SANS remain poorly understood." The available data show that even short periods in microgravity (virtual weightlessness) can result in venous stasis, dilatation of retinal veins, increased intraocular pressure and changes in blood pressure. By contrast with the dilatation of retinal veins, retinal arterial diameters are reduced in microgravity, which points to gravity-dependent regulation of arterial and venous vessels. "We therefore surmise that reduced venous return to the heart could be the underlying haemodynamic mechanism. This effect could also contribute to the development of SANS," says Dr Kathrin Klein.

Further detailed examinations are necessary, explains Dr Oliver Maier: "For example, we need to clarify whether countermeasures can reduce the impact of haemodynamic

changes during different gravitational conditions." Dynamic vessel analysis measurements in combination with an evaluation of intraocular pressure under real spaceflight conditions would be a desirable step toward answering this question for the three researchers. S.D./V.M.

#### → ORIGINAL PUBLICATION

Stephan Binneboessel,  
Norbert Gerdes,  
Michael Baertschi,  
Sema Kaya, Gerd  
Geerling, Malte  
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**Changes in Ocular  
Perfusion and Pressure  
Changes in Gravitational  
Alteration Contribute to  
Spaceflight-Associated  
Neuro-Ocular  
Syndrome;  
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HHU goes networking in space

**UNIVERSEH**

# UNIVERSEH – the pan-European space university

UNIVERSEH is an alliance of universities from seven EU countries. It is part of the “European Universities” initiative launched by the European Commission, which aims to increase international collaboration between universities and create joint education and research programmes. “European university alliances promote exchange between students and employees, develop innovative teaching and study formats, and strengthen a common European identity,” believes Professor Dr Heidrun Dorgeloh, Vice President for University Culture and International Relations. “As a thematic alliance focusing on space, UNIVERSEH also enables engagement with a pioneering area of technology, which is relevant and attractive to students and researchers from many subjects at HHU.” UNIVERSEH is one of the 64 university

continues Sladek. “The humanities in particular can offer a cultural anchor and provide reassurance to help counter the fear of change.”

## Wide-ranging networks

In her experience, businesses in Düsseldorf are keen to collaborate long-term with the UNIVERSEH project and Heinrich Heine University. So it is vitally important to arouse student interest in space research and New Space, i.e. private, commercial space travel. Networking between academia, government, society and industry are therefore key topics on Sladek’s agenda. V. M.

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[www.hhu.de/universeh](http://www.hhu.de/universeh)

## Engagement with pioneering technologies

alliances, which have already become established on the European market in recent years; the focus on space, earth and humanities is the unique selling point, which makes HHU part of a “space university”. “The aim of the project is to transform the European university landscape and provide impulses for business,” says Dr Eva Sladek, who is head of the UNIVERSEH team in Düsseldorf. “It is important that UNIVERSEH not only involves subjects such as physics, biology or medicine, but also that the humanities are included. UNIVERSEH looks at space in all its dimensions and from all perspectives,”

“European university alliances promote exchange between students and employees, develop innovative teaching and study formats, and strengthen a common European identity.”

Professor Heidrun Dorgeloh — Vice President



# Even Lady Justice can be mistaken

Karsten Altenhain's excellent study on errors in criminal court proceedings

BY CAROLIN GRAPE

The final judgement is a life sentence. But what if the conviction is wrong? What if an innocent person is put behind bars rather than the perpetrator? While spectacular miscarriages of justice often arouse significant media interest, the topic has received little attention in legal research and practice to date. The study *“Fehler und Wiederaufnahme im Strafverfahren”* (“Mis-  
carriages of justice and retrials in criminal court proceedings”), funded by the German Research Foundation, now sheds light on this topic.

Together with researchers from the Criminological Research Institute of Lower Saxony and the University of Psychology Berlin, Professor Dr Karsten Altenhain from the Chair of Criminal Law, Business Criminal Law and Media Law has conducted a detailed analysis of case files from 512 retrials from the years 2013 to 2015. “It is a fact that we know far too little about the phenomenon of wrongful convictions in Germany. Retrials and their results have not been recorded for statistical purposes or systematically analysed in this country to date,” says Altenhain. “Against the background of newsworthy miscarriages of justice and with a view to the sources of errors, we were particularly interested in the questions: How often are retrial applications successful? Where do the errors lie in the overturned judgements? And what are the causes of the errors?”

A retrial is understood as repeat or new court proceedings: “The retrial is the last lifeline when all regular legal remedies have been exhausted and a verdict can no longer be contested via an appeal against the judgement or on a point of law,” explains Altenhain.

However, it is only possible under very strict, also formal, conditions: “For example where new exculpatory evidence is found, statements made by witnesses are proven to be false, documents are proven to have been forged or parties to the

proceedings have committed crimes. A retrial to the disadvantage of an acquitted individual is only permitted in exceptional cases, such as after a subsequent confession,” says the legal expert. This is intended to protect the legal validity of judgements. However, critics have long accused legislators and the judiciary of defining virtually insurmountable hurdles to a retrial and that the success rate is very low.

## Analysis of case files

The study findings are therefore all the more surprising: Of a total of 512 retrials examined, 498 were initiated in favour of those convicted. In 215 cases, the final judgement was overturned. “That equates to a success rate of 42%. This high figure proves that the generalised criticism is unfounded.” The proceedings offer potential for justice.

However, the majority of the successful retrials related to minor offences such as theft, defamation, travelling on public transport without a ticket, etc. By contrast, serious offences such as murder or manslaughter were rarely in focus: “In our random sample, only 13 retrials involved homicides where those convicted denied the crime. None were successful,” says the legal expert.

**“It is a fact that we know far too little about the phenomenon of wrongful convictions in Germany. Retrials and their results have not been recorded for statistical purposes or systematically analysed in this country to date.”**

Professor Karsten Altenhain — legal expert

The study team conducted a qualitative examination of the errors in the 215 overturned judgements: Only 37% of these proceedings related to cases where those convicted had not actually committed the crime they were accused of — “the cases typically associated with the label ‘miscarriage of justice’,” says Altenhain. The wrongful convictions were often due to false witness statements, confessions, cases of mistaken identity or similar reasons. The majority (63%) were based on errors in determining the (lack of) criminal responsibility or assessment of punishment.

Despite the wide range of errors uncovered in practice, the study identified several common sources, including summary proceedings without trial. In two thirds of all successful retrials, the enacted penal order, a written judgement, was revised. Background: Summary proceedings without trial are usually used in cases of minor to mid-level offences. The local court issues the penal order at the request of the public prosecutor’s office. No trial takes place, the judgement is often enacted without a defence and without any communication with the defendant. The defendant must appeal within two weeks of the penal order being issued or the punishment becomes legally binding. Altenhain explains: “This simplified process,

which was originally intended to improve efficiency, seems to induce the public prosecutor’s office and the courts to complete only superficial investigations and reviews under the motto: The defendant will surely appeal if something is not right. But in many cases, these people are completely incapable of doing so.” Consequently, the criminal law expert also strongly rejects current legislative proposals to expand this process further.

## Causes of miscarriages of justice

The study identifies ignorance or non-observance of available information on the part of the public prosecutor’s office and the courts as a further source of errors. Such errors could be avoided if the judiciary had digital, central and direct access to this information. The procurement of information is already permitted, but it is not organised efficiently.

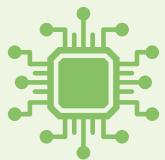
Finally, a third source of errors is simply a lack of specialist knowledge, for example where indications of serious mental problems in the accused are overlooked. “Appropriate training could help here, in particular for police officers who are the first to encounter the individuals.”

Professor Karsten Altenhain was awarded the Reinhard Heynen & Emmi Heynen Prize by the Society of Friends and Sponsors of Heinrich Heine University Düsseldorf (*Gesellschaft von Freunden und Förderern der Heinrich-Heine-Universität Düsseldorf e.V. – GFFU*) in November 2024 for his outstanding research on legal dogma and practice in criminal and criminal procedure law, in particular on the agreements, sources of errors and retrials in criminal proceedings.

## MORE INFORMATION

→ *“Fehler und Wiederaufnahme im Strafverfahren. Eine bundesweite empirische Studie anhand von Strafakten.”* (German only) Karsten Altenhain, Thomas Bliesener, Renate Volbert (publisher), Nomos Verlag, Baden-Baden, 1st edition 2024, ISBN print: 978-3-7560-1581-8  
<https://doi.org/10.5771/9783748945642>





Does green management pay off?

# Sustainability management



BY CAROLIN GRAPE

Professor Dr Rüdiger Hahn, holder of the Henkel-Endowed Chair of Sustainability Management, conducts research and teaching on the central issues of sustainable management at the interface to conventional management disciplines. Among other things, he discusses the importance and potential of sustainability management in companies and scrutinises the extent to which acting sustainably is economically viable: “The positive relationship between sustainability and company performance has been documented empirically many times in research.”

# S

sustainability management controls the ecological and social consequences of business activities. “It combines commercial activities with social benefits and is more than just a trend – sustainability has become one of the key topics of modern business,” says Hahn.

Sustainability means satisfying the needs of the present without endangering the opportunities of future generations. Hahn makes reference to the “three-pillar model”: ecological, economic and social sustainability. “These three dimensions – economically viable, socially equitable, ecologically bearable – must be considered in parallel and harmonised.”

The facts speak for themselves: “Studies on the economic costs of unchecked global warming, climate change or biodiversity decline show that there is no economically viable alternative to sustainable business worldwide,” reports Rüdiger Hahn.

The US economists Adrien Bilal and Diego Käenzig forecast a global decline in GDP of 52% by 2100 compared with 2024 in the event of unchecked climate change. According to the World Bank, loss of biodiversity up to 2030 will cost 2.3% of global GDP every year (approx. USD 2.7 trillion). In a recently published study,

researchers from the Potsdam Institute for Climate Impact Research estimate the global cost of climate change to run into trillions. They take into account effects, which could result from the expected increase in average temperature, altered daily temperature fluctuations and changes in precipitation levels. They expect a loss in income of 19% within the next 26 years compared with a situation without climate change. This would correspond to a figure of around USD 38 trillion. The loss expenses are already six times higher in the short term than the outlay required to achieve the two-degree target.

## Sustainability pays off

Sustainability also pays off from a business point of view: “Good ESG performance often improves financial performance,” says Hahn. The abbreviation ESG (Environmental, Social, Governance) describes criteria for sustainable management.

Hahn refers to numerous studies, such as Busch et. al. (2022), who analysed extensive panel data from 2005 to 2020 and were thus able to show that continuous improvement in corporate environmental performance is positively associated with financial success. Figures and results, which illustrate the situation with impressive clarity. In many cases, sustainable management is not only an ethical, but also an economic imperative for businesses. Businesses can reduce costs, exploit new

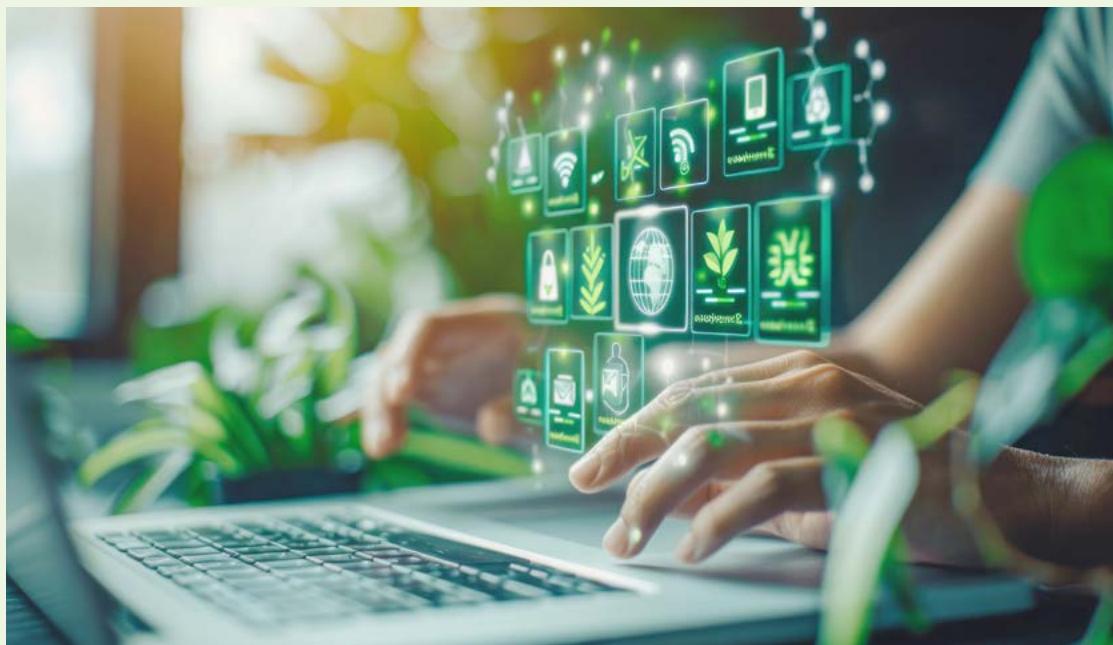


PHOTO: iSTOCK - MINI

markets, reduce risks and increase their attractiveness to customers, employees and investors. These factors improve competitiveness and lay the foundation for long-term success.

## Many obstacles as well as potential

So why are companies dragging their feet? The sustainability expert explains: "One big question is always: Who takes the first step, who follows? Companies are reluctant to expose themselves to the perceived risk of uncertainty." And, for some, it may in fact make more economic sense in the first instance to do less than others or nothing at all. This is because there are two sides to sustainability management – in addition to great potential, there are also obstacles: Initial investment is high, regulatory uncertainties exist and there is often no tangible success in the short term. In particular in price-sensitive sectors or where margins are tight, making the switch is difficult.

"And of course no-one can say for certain whether the individual parameters for success that applied in the past will continue to do so in the future," the researcher continues. This is dependent on many framework conditions. So, companies really do need to weigh up which measures they wish to pursue and for what reasons – and they do not always have to be purely economic reasons.

**"One big question is always: Who takes the first step, who follows? Companies are reluctant to expose themselves to the perceived risk of uncertainty."**

Professor Rüdiger Hahn — management researcher

Hahn indicates various scenarios for the cost/benefit dynamic of sustainable measures. Technological innovations can reduce costs, while greater social expectations can boost the benefit of sustainable strategies. By contrast, insufficient regulation, which may lead e.g. to a falling CO<sub>2</sub> price in certificate trading, or a reduction in public interest may make sustainability efforts more economically unattractive.

The researcher concludes: "The facts show that sustainability management involves more success factors than is often assumed. In many cases, it is important to adopt a long-term perspective and pursue sustainability as a strategic goal, even when short-term advantages are less obvious."



# *Haus der Universität*

The *Haus der Universität* is a place of dialogue and exchange between science and society – in the heart of Düsseldorf. After extensive renovations, the van Meeteren Foundation kindly allowed Heinrich Heine University to use the building at Schadowplatz 14 as an event centre and, since 2013, as a venue for scientific conferences and for presenting university research and teaching

as well as academic culture. The *Haus der Universität* takes on a central function for Heinrich Heine University at the interface between science and the public. It is part of the higher-level public engagement strategy being pursued by the university, which actively furthers the exchange between the city of Düsseldorf, its citizens as well as society as a whole.

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