

The Offspring MAGAZINE

A publication of the Max Planck PhDnet

**Who We Are &
What We Stand For**

**What's in a
Name?**

**Mental Health at
Top Performance**



Letter from the Editorial Team

In this world, there are things you can do alone, and things you can only do with somebody else. It is important to combine the two in just the right amount.

– After Dark by Haruki Murakami

For all of us, especially those involved with the Max Planck PhDnet, an exciting year has passed – filled with a lot of science, challenges within our PhD, good and bad results, thrilling new adventures and new companions we met along the way. In this year's print version we try to cover all of those topics in various sections.

Who we are and what we stand for? One highlight since last year's print version is the release of the 2017 PhDnet Survey report – a survey that gives us important insight about who the doctoral researchers of the Max Planck Society are and how they feel – about general working conditions, supervision, mental health, discrimination, parenting and so on. This survey serves as a basis for future surveys to come and we are already looking forward to the results of the 2018 PhDnet survey. One of the challenges this year was the recent media coverage about power abuse within the Max Planck Society. Because of the importance of this topic, the Offspring decided to include the PhDnet position paper by the PhDnet Steering Group 2018 about Power Abuse and Conflict Resolution. There are things you can only do together and we are glad that all of us try to shape a better future for doctoral researchers within the MPS. Further, at our annual interdisciplinary 'Visions in Science' conference, we learned about the future governance of technology and engaged in lively discussions about science communication. At the 2018 Career Fair, we had the chance to network with companies, such as, Capgemini, Google, Elsevier and McKinsey as well as fellow doctoral researchers. And at last year's N2 conference, communication was the key – A Vision into the Future of Science Communication, bringing together Max Planck PhDnet with Helmholtz Juniors and the Leibniz PhD Network.

Last year's Offspring highlight was the Awareness Month initiative. This year we are really glad to continue with this. We covered topics like LGBTQ+ with a tribute to Ben Barres, an outstanding neuroscientist, and raised awareness about the importance of a healthy mind together with a guide to available resources. We also covered Disability Awareness Day with an article about Stephen Hawking and worked together with the Equal Opportunities group on an article about the "#MeToo" movement.

The future is sometimes a big question mark for some of us. The Offspring career section tries to give you an insight into careers within and outside academia. You can read about Karen and her job at Sanofi, a global pharma company, as well as about Paul and Manuel, two of the Otto Hahn Medal Winners in 2018.

In our "What's in a Name" article, we try to tell the stories behind some of science's most curious and funny names that the Offspring team knew from their field of study. We are happy that the Offspring can serve as a platform for science communication, and as a way for you to tell us what you are doing with your research – always feel free to share this with us like Shyam & Baptiste from the MPI for Iron Research did with their article "Angstronauts".

Not only did the PhDnet embrace social media by joining Instagram & Twitter but the Offspring team is also taking on new challenges in the future. In October, we had our first Smartphone Video Workshop and now plan to also vlog in 2019 – thus, we are always looking for cool stories and of course your help! We want to acknowledge the strength in communication and unity and are happy to provide a platform where all of you can share your ideas and experiences. There are definitely things every one of us needs to do alone, but there are also certain aspects where we all have to work together and support one another in our daily endeavors. We are grateful to the Max Planck PhDnet and the exceptional work of every one of you.

We would also be happy to welcome any new members – writers and/or editors – to our team at any point. Just drop us a line at: offspring@phdnet.de if you are interested in joining the Offspringers. You can find all of those articles and link to our print version on our blog, but sometimes traditions remind us of who we are – therefore we are excited about our 2018 print version and hope you enjoy reading it. Feel free to reprint, share and discuss.

Sincerely,

The Offspring Team

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“DRG Sun” by Doris Hermes (Max Planck Institute of Experimental Medicine, Göttingen)

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Picture credits

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Power Abuse & Conflict Resolution

BY JANA LASSER
PhDnet Spokesperson

Conflict resolution is a difficult topic and becomes even more complicated when there is a power difference between the parties involved. The PhDnet has been aware of problems with power abuse and conflict resolution concerning doctoral researchers for a while. In our agenda for the year 2018, we had already planned to establish more robust measures to report and resolve conflicts. In February of this year, the first report about power abuse at the MPI for Astrophysics in Garching hit the news. In our meeting with President Stratmann in April, we pointed to the general problem well aware that it had the potential to create a bad impression upon the public. We demanded, among other things, mandatory leadership trainings for PIs, but were not successful in our demands. Later this year, more reports became public about the dimensions of the case in Garching as well as a new case at the MPI for Cognitive and Brain Sciences in Leipzig. We decided that it was time to make a public impression by voicing our demands and using the increased public attention to the situation of early career researchers in academia. We collected input from many individuals who reported conflicts to us as well as our colleagues from the doctoral researcher representations at the Helmholtz and Leibniz associations, and created a position paper which we made available to the media reporting on the cases. In the paper, we made it very clear that the problem is not unique to the Max Planck Society, but rather a product of the dependency of early career researchers (with fixed-time contracts) on single PIs, directors and professors everywhere in academia. We suggested a multi-faceted approach targeting the four areas of prevention, protection, conflict resolution and consequences, proposing a list of concrete measures that should be implemented to resolve conflicts and reduce power abuse.

Since then, our position paper has been recognized by the General Administration and is part of the discussion on solutions in the newly-formed Task Force on power abuse and sexual harassment – in which the PhDnet Spokesperson has a role as permanent guest. We have also received a multitude of very positive feedback about our initiative from young researchers, PIs, scientific coordinators, ombudspersons and works councils. We hope that by taking a public stand against power abuse in academia, naming the problems clearly and proposing practical solutions, we can contribute to making our academic system a safer and happier place for early career researchers.

The Position Paper

As PhDnet we speak for the over 5000 doctoral researchers (DRs) currently associated with the Max Planck Society (MPS). Our primary goal is to advocate for the physical and mental health of DRs as well as the advancement of their careers. Furthermore we see ourselves as integral part of the MPS and want to help maintain its scientific excellence while striving to be an employer that acts in the best interest of all its employees. What recent media reports have shown is only the tip of the iceberg. We as the representation of DRs see the prevalence of power abuse and the difficulties to solve interpersonal conflicts as a structural problem of the academic system. The problem is caused by

- steep hierarchies and multi-dependencies of young researchers on the one hand,
- high pressure to publish as well as
- lacking training in leadership and personnel development of scientific leaders on the other hand.

The lack of robust and trustworthy mechanisms to report and resolve conflicts makes it hard to help and protect victims of power abuse and harassment and even harder for perpetrators to receive honest feedback and learn from it. The existence of this problem has to be recognized by the academic system as a whole and we need to work on a solution together. In this paper we propose a differentiated and multi-faceted solution to a complex problem that targets four main areas: the **prevention** of conflicts and power abuse, the **protection** of victims and early career researchers in less powerful positions, the **arbitration** of conflicts by a committee independent of the MPS and the implementation of **consequences** for offenders.

A binding **code of conduct** that defines the culture that the MPS wants to establish concerning power abuse and harassment needs to be enacted before arbitration measures can be fully implemented. The prevention of power abuse and supervision conflicts has to be **considered a matter of good scientific practice** by the academic system.

Below we formulate concrete steps and measures for implementation within the MPS since we are the elected representation of the DRs associated with the MPS. Nevertheless we understand this position paper as a basis for discussion for the whole academic system.

Prevention

A main reason for the occurrence of power abuse is the dependence of an early career researcher's livelihood and career on one single person: the supervisor. We propose

- Consistent implementation of **Thesis Advisory Committees** (TACs) – TACs have to become the norm (currently 54% of DRs have a TAC, see PhDnet survey 2017). Furthermore, binding

BY THE PHDNET STEERING GROUP

guidelines on how TACs are established have to be implemented regarding

- i) independence of members,
- ii) number and function of members
- iii) number of meetings,
- iv) mandatory meetings without the supervisor present and
- v) documentation.

- A **clear definition** of the **role of the supervisor** has to be established: the supervisor is not only there to lead and evaluate research, but also to help with career development and to ensure good mental and physical health of the DRs.
- The supervisor alone must not be the only one to decide over a contract extension. This decision has to reside with the TAC for scientific reasons and the head of the personnel department for administrative reasons.
- DRs should be employed by institutions rather than single PIs. Institutions as a whole have to be responsible to ensure their funding and supervision.
- Every scientific leader in the MPS who is responsible for the training of early career researchers must undergo **mandatory and regular leadership trainings** that include training on communication, conflict resolution and supervision as well as the recognition of behaviour that violates the code of conduct and occupational safety regulations.
- Every early career researcher has to be part of an onboarding workshop that **informs** about the code of conduct and occupational safety regulations as well as existing mechanisms to report and resolve conflicts.

Protection

Once a conflict has become apparent, the livelihood and scientific career of the early career researcher has to be protected. We propose that

- The MPS helps **finding a new supervisor**, if necessary at a university or other institute if the situation makes relocation necessary,
- a written statement is issued, granting the affected DR **access to research data**, results and facilities needed to complete the PhD project for the rest of the duration of the project - within reason,
- **employment and funding** until the end of the PhD project is ensured and
- a confirmed supervision conflict is **recognized as reason for a contract extension** within the regular 3+1 years and possibly beyond 4 years project duration.

Arbitration

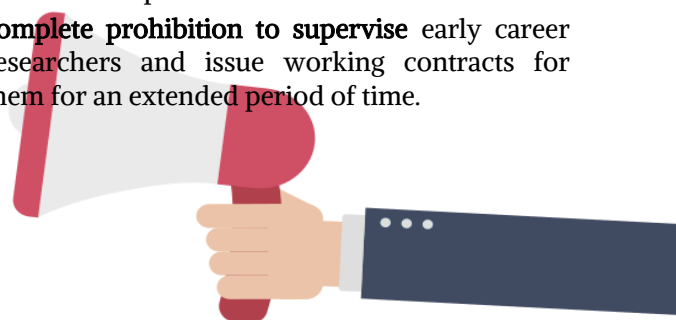
Power abuse, harassment and interpersonal conflicts can occur in a wide range of severities. Many actions fall into a grey area that is not covered by the criminal code of Germany. To find judgement in case of a conflict, several steps are necessary:

- To divide this grey area into clearer regions of tolerable and intolerable actions, a **code of conduct** as basis for the arbitration of conflicts must be adopted.
- For conflict arbitration, a **committee independent of the MPS** and **trusted** by all its members has to be established. We propose a committee which is headed by a professional mediator and includes members who are early career researchers, scientific leaders and scientific staff members (not employed by the MPS).
- Once a conflict is reported, it is **investigated and judged by the committee**.
- Control over the arbitration process, flow of information and communication has to always lie with the victim.
- **Existence** of the independent committee has to be **communicated** broadly and continuously to all employees of the MPS.
- Conflicts recognized by the arbitration committee have to also be recognized by the affected institute. Measures taken as well as steps in the arbitration process have to be **communicated regularly and transparently** to everybody affected.

Consequences

Even if effort is put into the prevention of conflicts, power abuse and harassment, we have to recognize that they can always occur as long as humans interact. If the behaviour that violates the code of conduct occurs repeatedly or is severe, consequences for the offender have to be considered. We suggest a binding and transparent list of consequences that are implemented depending on the severity of the offense, including

- **mandatory trainings** and coaching for offenders,
- mandatory **co-supervision** with an independent colleague and
- reduction of number of supervised early career researchers up to
- **complete prohibition to supervise** early career researchers and issue working contracts for them for an extended period of time.





CONFERENCE

A Vision into the Future of Science Communication

BY ANA RITA COSTA

“Science Beyond Borders”

On the 6th November 2017, the N2 Science Communication Conference started with the motto “Science beyond borders” at the Museum für Naturkunde Berlin. With around 150 participating doctoral researchers from the Max Planck Society, the Leibniz Association, and the Helmholtz Association, the event was initiated with a presentation by the N2 Board. N2 – meaning the “network of networks” – unites more than 14.000 doctoral researchers of the doctoral research networks: Max Planck PhDnet, Helmholtz Juniors, and Leibniz PhD Network. The current spokespersons of the three networks, who represent the N2 Board, explained how important it is to join forces to promote and deal with issues of doctoral researchers in the non-university research sector. Their focus is on working conditions, career development, supervision,

and equal opportunities of doctoral researchers. In this context, the N2 Science Communication Conference was meant to promote the discussion about fact-based science and its communication to the public by experts, like doctoral researchers. Moreover, it came as an opportunity for young researchers to get insights into state-of-the-art science communication as well as to explore new avenues of scientific outreach without neglecting the past.

“We have to communicate with the society – it’s our ethical duty as researchers” – Jan-Lucas, Spokesperson of the Leibniz PhD Network

Prof. Dr. Johannes Vogel, director of the Museum für Naturkunde in Berlin, did the honors and stressed in



Audience at the N2 conference



"Try to get a decent degree, perhaps even a postdoc, and keep in mind that you have other responsibilities. And as a scientist you have to communicate the science you are doing (...) think of who is the recipient of the information and how you can break down the information to the recipient." - Prof. Dr. Johannes Vogel, Director General of the Museum für Naturkunde Berlin

In his Welcome speech the importance of "innovation with participation". He explained how the ecosystems, and on a bigger scale our planet, is always changing, stressing that it will fall to the younger generations to be the drivers of this change. Prof. Vogel also highlighted the extreme importance of open science policies.

Following the common interest in open science, we heard Dr. Judy Mielke, the editorial program manager at Frontiers. With an academic path quite similar to the one of the attending doctoral researchers, she explained how literature screening has changed dramatically in the past years. Dr. Mielke further highlighted how, nowadays, traditional academic publishing is expensive even though taxpayers have already paid for it. With open access, Frontiers is opening the door to community feedback and interest, as well as many other activities to involve all levels of society.

Following a coffee-break with a poster session among dinosaurs and historical artefacts, the 150 doctoral researchers welcomed 100 public guests as well as journalists and artists to celebrate together a Science Festival in the frame of the Berlin Science Week 2017. All guests had the pleasure to listen to Dr. Sam Illingworth, a Senior Lecturer in Science Communication at Manchester Metropolitan University. Dr. Illingworth opened our minds to the relationship between science and poetry as two different ways of looking at the world. With his poetry he shed light on such diverse topics like the peppered moths, climate change, and nuclear missiles. He even made all of us question the achievements of science.

Dr. Sascha Vogel, a theoretical physicist, science communicator, and movie lover introduced us to how



"One has to be in the system to change the system." - Dr. Judy Mielke, the editorial program manager for Frontiers

Hollywood communicates science. As a physicist he was taught that physics is constant everywhere, but we learnt that in Hollywood things are apparently quite different. In a very amusing voyage, we went through some moments in Hollywood movie history where physics is not considered (at all!). An opportunity to learn that even when millions are spent on movies and millions of people see them, science is not always correctly communicated to the wider public.

The day ended with the presentation of several objects, projects, and performances provided by doctoral researchers with the aim of bringing science together with art. This part of the program was of special interest since it made the guests go "beyond the borders" in which they usually see science and instead experience it through a different approach.

"Science Communication in Practice"

The second day of the conference started at the EUREF (Europäisches Energieforum) Campus in Berlin. Here, all doctoral researchers could learn how to improve their science communication capabilities and its implications by attending workshops. The participants were able to choose two of the four provided workshops: "Data Visualization in the Wild" (with Gwilym Lockwood), "The Art of Presenting Science" (with Gijs Meeusen), "Impact Training" (with Rosmarie Katrin Neuman), "How to Write a Popular Science Article?" (with Benjamin Denes), and an alternative "Museum Tour at the Gemäldegalerie Berlin" (by Linda Olenburg) with a focus on Italian paintings.

Between the workshops, Dr. Tobias Maier from Nawik gave an inspiring talk entitled "Increasing Impact: How to communicate science to non-specialist audiences". Dr. Maier focused on the importance of writing about current topics from our personal angle and reminded us to always keep our communication in the scope of

WHO WE ARE & WHAT WE STAND FOR

exactly those who we want to address. The second day ended with a very productive poster session in which many participants applied the knowledge just acquired in the workshops. The topics were so varied and interesting that there could not be a better ending of the day than with a crowded Pub Quiz in the Café Hardenberg.

“Future of Science Communication”

The third and final day of the N2 Science Communication Conference started with an eloquent talk by Prof. Onur Güntürkün about "Science Communication as Duty, as Art, as Passion". Prof. Güntürkün presented his reasons for why science communication is important, based on his vast experience and encounters during his career as a scientist. He also gave recommendations of how to pursue science communication in a more efficient way, focusing on the careful dealing with the media. In addition, Prof. Güntürkün talked about the ways, in which he actively tries to get his lab members to engage in science communication.

Following Prof. Güntürkün's talk, Prof. Dr. Matthias Kleiner, President of the Leibniz Association, gave an insight into the origins of the N2 Science Communication Conference and contemplated about its success. Furthermore, he stressed how the importance of science communication has grown over the years, especially in light of “alternative facts”. He described how social media and digitalization have changed the way scientists and the general society can interact, and that this presents a great chance for communication. In the end, he also emphasized “Citizen Science” as an example of how we can make science communication work.

For the panel discussion we were pleased to have Onur Güntürkün (Neuroscience), Stephan Balzer (TEDx Europe Ambassador), and Sybille Anderl (Astrophysics – philosophy) as guests. The discussion was moderated by Jule Specht (Psychology). (The panel was transmitted live and can still be watched on the N2 facebook page.) All guest speakers explained how they got interested in Science Communication as a hobby during research time and/or simply through their pure love for science.

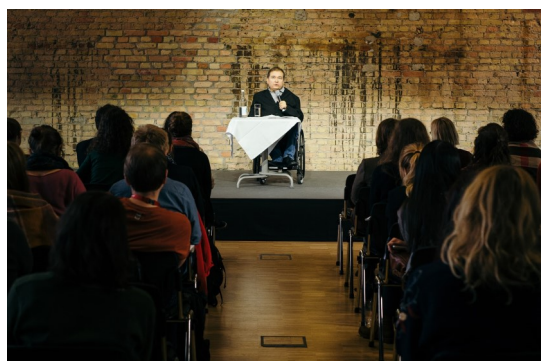


“Physics is slightly different in Hollywood!”
- Dr. Sascha Vogel, Managing Director of the Frankfurt International Graduate School for Science

Nevertheless, it was recognized how important it is to have proper training in order to bridge between science and communication. Stephan Balzer also pointed out how young people are generally interested in TEDx talks and that 18 min (the typical TEDx talks time) are more than enough to communicate a clear idea. Fake science and rock-star scientists were also a main focus of the questions from the audience. In this context it was stressed how important it is to have trustworthy role models in science to combat fake-facts and fake-science.

All the doctoral researchers looked fulfilled by the end of the N2 conference, pointing out that “It was very nice to see balanced panels and presenters!”, and with approximately 95% of them answering that they are eager to devote time to science communication in the near future.

Last but not least, it is important to thank everyone for taking part and making the event happen! Many thanks to all the participants and speakers, but mostly to the “mother associations”: Helmholtz Association, Max Planck Society, and Leibniz Association. The event helped a lot of doctoral researchers to broaden their views on science communication and made them understand it as a part of their duty as scientists. We have to communicate to both: to our peers, but also to the non-expert public.



“We work with the savings of other people (the taxpayers) who never visit a lab. So it is our DUTY to communicate our science” - Prof. Onur Güntürkün, Professor for Biopsychology at the Ruhr-University in Bochum



“Communicating science in social media does not hurt your scientific career.” - Dr. Tobias Maier, Nawik-Nationale Institut für Wissenschaftskommunikation



"How do you evoke the passion of the people?" - Sybille Anderl

"We try to bring together the person and the science the person is interested in. We have the tendency to use data, whereas we do not connect the data to a person." - Stephan Balzer



"I feel a strong commitment towards sci com from my heart and from the Leibniz Association. N2 has managed to form a clear voice while only starting to work in the past year." - Prof. Matthias Kleiner, President of the Leibniz-Gemeinschaft



"The more we find out about our world, the more mysterious we find it to be." - Dr. Sam Illingworth, Senior Lecturer in Science Communication at Manchester Metropolitan University



Discussions and networking at N2



The 7th VISIONS in SCIENCE

Conference

BY LISA LINHOFF AND MAYUKH PANJA

The 7th Visions in Science conference (ViS) was hosted at the Harnack House in Berlin from the 5th to the 7th of October. Visions in Science is the annual interdisciplinary conference organized by members of the PhDnet – the network of doctoral researchers in the Max Planck Society. The conference program typically consists of talks by scientists from a broad spectrum of disciplines with the aim of presenting and discussing science with a diverse audience. In addition, there are panel discussions where experts discuss pressing issues related to science, and students communicate their research through Science Slam and Poster competitions. This year we chose to have a special focus on “Science and Society” with the intent of exploring the effects, both immediate and long term, of science on society and vice versa. In keeping with the theme, the panel discussions were on Governance of Technology and Science Communication, issues that are very likely to take center-stage in the foreseeable future.

The opening talk was given by Dr. Alexander Quintanilha, a former molecular and cell biologist, who is currently an active politician in the Portuguese

Parliament. His talk set the tone for the conference – he discussed the role of science in society and ended with speculations on the effects of morally contentious areas of research. The second speaker, Dr. Ralph Kuehn, picked up from where Dr. Quintanilha left off and discussed CRISPR, a powerful gene-editing technology, which has raised concerns among technocrats about its possible ramifications. This concluded the first day, and the discussions were continued more informally over a McKinsey-sponsored dinner event.

The talks of the second day were from topics that are often seen as opposites of the spectrum of science – history and technology. Dr. Sebastian Sonntag laid out a futuristic vision of society where we not only mitigate climate change but actively engineer the climate around us to suit our needs; while Dr. Ipke Wachsmuth warned us about the troubling data acquisition practices companies often engage in. The social sciences were represented by Dr. Bettina Hitzer, who took us on a journey through the history of emotions, and Dr. Peter Spierenburg, who discussed male violence and honour. A lively panel discussion on the Governance of



Participants of the 7th Visions in Science Conference at Harnack House in Berlin

Technology separated the two sessions. An intense round of discussion explored the threats associated with Artificial Intelligence and possible regulations that can be put in place to rein in errant companies. The day ended with Dr. Jeremy Baumberg prodding us to think about the larger picture of science, while discussing his book – *The Secret Life of Science*. Like the first day, a conference dinner hosted by Elsevier led to more scientific discussions and, later, spontaneous music sessions on the open grounds of the Harnack House.

The third and final day had again three very diverse talks – Dr. Pascal Vrticka spoke about the neurological aspects of social behaviour; Dr. Miho Janvier, an astrophysicist, showed us a more dynamic side of our very own star, the Sun; and Dr. Stephan Van Damme walked us through the history of science. The final session of ViS 2018 began with a panel discussion on Science Communication, where speakers reflected on the difficulties of being actively involved in communicating science while pursuing a career in research. This led to a discussion on the efficacy of different methods of science communication, especially given the constraints of time scientists are subjected to.

The final leg of the conference was reserved for students presenting their work through Science Slams. Amid much cheering from the audience, six students presented lightning talks of their work compressed into 5 minutes. The winner, Vincent Cheng, was selected by the audience for his innovative use of the music video “What does the fox say” to describe his PhD thesis with musical elements. The award for the best poster was given to Dafne Morales for her work on the early stages of embryogenesis.

The conference began with the associated Career Fair on Friday morning. More than ten companies came to discuss, with roughly 280 doctoral researchers and other participants, career options outside of academia. This aspect is important for PhDnet, seeing as only a small portion of PhD students actually progress to become a group leader. A novelty this year was the seminar series. In 45-minute sessions we went through case studies, learned about writing CV’s and how to put your skill of cocktail parties to good use in networking.

Visions in Science ‘18 saw scientists and future researchers from a broad variety of disciplines come together and discuss science, society, their shared visions of the future and much more.

In addition to science, it gave an opportunity for like-minded people, with common goals and a shared passion for looking beyond the ordinary, to form lasting bonds in a stimulating and engaging environment.



Panel discussion on Science Communication



Jana Lasser, Spokesperson of the PhDnet (left), meeting other doctoral researchers during the poster session



Vincent Cheng receiving an award for the best science slam talk for his innovative use of the music video “What does the fox say”

MAX PLANCK DAY

On September 14th, 2018, we celebrated three jubilee milestones of the Max Planck Society: The 70th anniversary of the society's foundation, the 160th birthday of Max Planck, and the 100th anniversary of Max Planck being present with the Nobel Prize. Many events took place at the various Max Planck Institutes across the globe, shining a spotlight on the young researchers within our organization. Enjoy some of the highlights below!



Forschung
WO

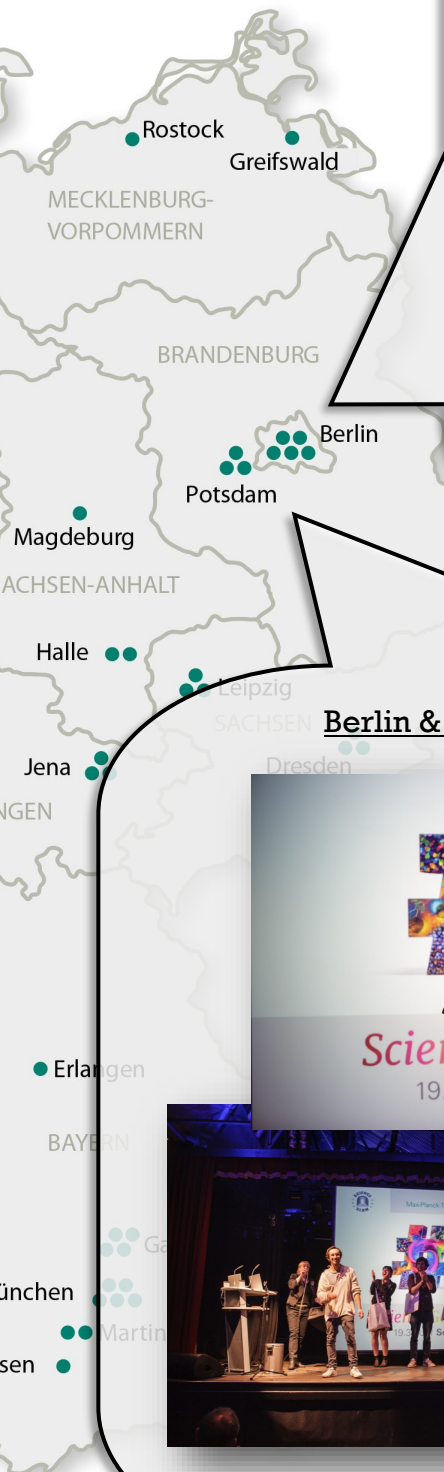
Göttingen Max Planck Day Science Slam @ Dots, Göttingen



Heidelberg Max Planck Day Science Slam @ DAI, Heidelberg



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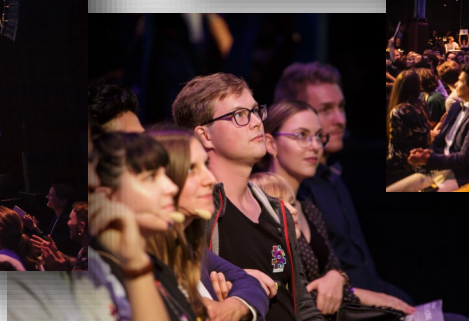


Max Planck Day Berlin: “Nachwuchsjournalisten treffen auf Nachwuchswissenschaftler”

*Electronic Media School Potsdam
MPI for the History of Science
MPI for Human Development
MPI for Molecular Genetics*



Berlin & Potsdam Max Planck Day Science Slam @ Festsaal Kreuzberg



The 2017 PhDnet Survey

Quality Management for Doctoral Research

BY JOHANNES KAUB

Pursuing a doctoral degree is tough. It takes a lot of dedication and passion for science to voluntarily commit typically more than three years to working towards a far-off and often poorly defined goal. In many cases, the workload is high and the payment less than attractive. On top of that, not only do fields of research and projects vary a lot between disciplines, but also from site to site and from institution to institution. Furthermore, working conditions and scientific conduct may be blatantly different for other doctoral researchers even though they are in the same situation. So how can we make sure that the highly diverse German academic landscape manages to keep up its renowned high quality in research and education?

With hundreds of institutions committed to the training of junior scientists in Germany, acquiring data on the working realities of doctoral researchers seems like a monumental task. Still, every step towards this goal—no matter how small—bears its own significance, and the effort made by the PhDnet with its 2017 Survey, collecting and evaluating data on the working conditions of Max Planck doctoral researchers, is far from small!

Of the well more than 4,500 doctoral researchers currently affiliated with the Max Planck Society, the Survey managed to collect details about the professional lives for a total of 2,218 young scientists. One thing to note: There were participants from every single one of the 84 Max Planck Institutes, even from the five Institutes that are situated outside of Germany! This inspiring level of participation does not only emphasize the importance of this tool of quality management employed by the PhDnet, but also speaks to the reliability and representativeness of the data collected. A great thank-you to everybody who took the time to participate!

As the biggest Survey ever conducted among Max Planck doctoral researchers, the questionnaire focused on several different topics. After recording some basic Demographic details to put the responses into perspective, a section of questions regarding Employment, Funding and Vacation details was posed,

followed by several inquiries about the researchers' Working Conditions, especially directed at satisfaction with various factors like supervision and working hours. The next—particularly sensitive—section raised questions on issues of Equal Opportunities and discrimination, with parenthood and mental health as the most prominent subjects in this context. Finally, the Survey closed with collecting data on the notoriety of the PhDnet and its activities among the Max Planck doctoral researchers, and added some questions regarding the Max Planck Alumni Association (MPAA) and the red-hot topic of Open Access publishing.

An integral part of the statistical analysis of data collected through surveys like this is cross-correlation. In this way, it is possible to explore connections between different items of interest, identify inequalities and provides hints to their causation. For instance, cross-correlation allowed insights into the financial reality of salaries for male vs. female researchers. Only through such compelling evidence from correlation is it possible to back theoretical claims and initiate well-founded actions aimed at changing the highly bureaucratic system that is modern-day academia. Past Surveys have provided the PhDnet with data corroborating the bias between international doctoral researchers—who were more likely to obtain their funding through a stipend along with all its implications—and those of German origin, who were more often employed with contracts, offering a much broader spectrum of social benefits. While stipends offer greater flexibility e.g. in the organization of working hours and vacation and hence put a strong emphasis on promoting the scholar's self-responsibility, unlike contracts they do not include a proper health insurance, and stipend holders do not contribute to the pension system. In 2015, this led the Max Planck Society to start offering contracts to all new doctoral students as a standard procedure.

One peculiar finding of the Survey in the context of Gender Equality is this: While institutes focused on research in Chemistry, Physics and Technology employ twice as many male doctoral researchers as females, this ratio is flipped in the section of Human Sciences. Feminism and similar concepts are doing their best to



break with restrictive traditions of inequality, but a closer look shows that Gender Equality comprises more than just the enforcement of a contingent of female employees. All the individual Max Planck Institutes make efforts toward a more gender-equal employment situation, both in management positions and on a more basic level. For further information, the Equal Opportunities officers, who—among other things—are tasked with formulating a Gender Equality Plan for their respective institute, can be approached. Another useful source of information and support on Equal Opportunities issues is the PhDnet EO workgroup.

The Survey identified two major sources of dissatisfaction for doctoral researchers: salary and holidays. While many Max Planck Institutes have adopted the policy of offering compensation equal to 65% of the public service labor agreement in Germany (TVöD), this is not true for all of them. The resulting disparity in wages—sometimes even between doctoral researchers at different institutes in the same city—is a major cause for discussion and concern. Another recurring cause of discontent is the Max Planck Society's policy of abidance by the Federal Leave Act (Bundesurlaubsgesetz) and its guidelines on minimum holidays in Germany—a practice uncommon, for instance, in doctoral research at a university. The PhDnet has been working towards loosening this policy and earning ten additional days of annual vacation for its doctoral researchers for quite some time. The Survey might help them finally put this motion through.

While Max Planck doctoral researchers are generally very satisfied with their working conditions, reports of dissatisfaction mainly relate to supervision and scientific support. Specifically, a low frequency in meetings with the supervisor appears to be a strong factor contributing to negative evaluations of supervision quality. While respondents to the survey report an average of seven doctoral researchers per supervisor (a number that is in concordance with the limit of eight as defined in the Max Planck Society's rules and guidelines), one in five respondents report sharing their supervisor with nine or more other doctoral researchers. If a research group grows too large, a number of problems can arise, among them an increasing difficulty of maintaining an overview of all the different projects and their status. This may adversely affect the quality of scientific support, possibly leading to a palpable decrease in motivation and satisfaction in doctoral researchers. Countering and controlling this is one of the tasks faced by the Max Planck Society's administration.

And yet another very important challenge to the MPS (as well as every other institution contributing to the training of doctoral researchers) shows itself through the Survey: Even though the ratio of junior scientists that wish to continue working in an academic environment after graduation has been steadily declining for the past years, today more than half still bear this intention. On the other hand, only about one in three actually believe they will be able to achieve this, and the actual number of available positions for emerging researchers in academia paints an even darker picture. In light of recent developments in the job market for young scientists, it becomes apparent that an effort must be made to point out alternative possibilities of career for all those that will, despite their wish, not be able to follow the tenure track.

As mentioned previously, one of the Survey's major focal points was the topic of mental health. Recent publications have raised awareness that the conditions of modern-day doctoral research is likely to contribute to symptoms of stress and depression in young scientists. Even though the Survey's results did not offer any evidence for an apparent connection between mental health issues and workload (as in working hours per week), stress-related symptoms are prevalent in a majority of doctoral researchers, and a large ratio of respondents agree with the statement that their work is a significant contributor to this.

A careful collection and distribution of well-grounded statistics has gained even greater importance in the wake of the emerging practice of “alternative facts”. The Information Age has made it easier than ever to spread information—be it actual facts or mere opinions—through a multitude of channels ranging from social media, online blogs (such as this one), video platforms, discussion forums to privately-owned websites, and this doesn't even begin to touch all the possibilities outside the Web. Sadly, it has also become increasingly difficult to draw clear lines between truth and misinformation, between thoroughly investigated findings and mere rule-of-thumb estimates, between proper results of scientific investigations and far-fetched numbers made up to support arbitrary claims.

Thus, it is vital to maintain an orderly culture of documentation, particularly in scientific publishing. Polls like the PhDnet Survey 2017, time-consuming as they might be for those involved, are invaluable tools to foster a repository of data and information that may well serve to promote equality and a sense of belonging in the rather individualistic and competitive environment that is A-list research.



The Offspring and Equal Opportunity tribute to

Ben Barres



BY CONSTANZE DEPP, MARIA EICHEL AND RENEE HARTIG

Barres was a big fan of the Harry Potter books whose protagonist he could identify with. This fan love ultimately accumulated in the changing of his official Stanford profile picture to the displayed image (above), created by students in his lab. [Image courtesy of Richard Daneman and Andrew Huberman]

On December 27th, famous neurobiologist, Stanford professor and Harry Potter Fan, Ben Barres passed away at the age of 63 after a short and severe illness. Barres, one of the strongest and most prominent equal opportunity advocates in life sciences, held a fairly unique perspective on this issue due to transitioning from female to male during his scientific career. Thus, for the Offspring's LGBTQ+ awareness month, we would like to pay tribute to this exceptional scientist by giving an overview of his scientific career, his contributions to the Equal Opportunities (EO) movement, and his pleading for proper mentoring in science. By sharing our own stories about how we first learned about Barres, we hope to highlight the encouraging fact that it is truly first about his research, and only then about his personal life choices.

Chapter 1: Learning in Hogwarts – Scientific Career. Barres was born on September 13th, 1954 in West Orange, New Jersey with a female gender assignment. After school, the tomboy with a genuine enthusiasm for science went on to the prestigious Massachusetts Institute of Technology (MIT), graduating with a Bachelor of Science degree. Thrilled by his first encounter with neuroscience, he eventually decided to become a clinical scientist, changing his major from computer science to pre-medicine. Afterwards, Barres entered Dartmouth Medical School to obtain a medical degree in 1979. During his neurology residency at Weill Cornell University, he felt devastated by the lack of treatment options available for his patients; he traced this problem back to the neurobiology field being notoriously understudied at that time. Driven by the motivation to help better understand and treat neurological diseases by conducting basic research, Barres decided to obtain a formal PhD after completion

of his neurology residence – a rather unconventional career step. During the beginning of his doctorate in the lab of David Corey at Harvard Medical School, Barres worked as a PhD student during the week and as a neurologist at night and on the weekends in order to start paying off his student loans. Once his PhD supervisor David Corey offered him a proper postdoc position (after all he already held a medical doctor degree), he gratefully accepted this to focus on his research and quit medical practice. During his PhD Barres followed his interest in glial cells – the non-neuronal cells of the brain that have originally been described as the “glue” holding neurons in place.

During a neuropathology rotation, Barres had learned that glial cells reacted to several kinds of brain damage with a mysterious proliferative response called ‘gliosis’. From the groundbreaking work during his PhD, he characterized ion channels and neurotransmitter

receptors in glial cells, indicating that these cells – similar to neurons – are able to communicate with each other. After earning his doctorate in 1990, Barres joined the lab of Martin Raff at University College London (UCL). Here, Barres developed a sequential immunopanning technique to isolate oligodendrocyte precursor cells from optic nerves – a method that would form the basis of several landmark discoveries in his own lab later on – and contributed significantly to understanding the oligodendrocyte precursor division and differentiation processes. After his very successful time at UCL, Barres moved to Stanford to establish his own lab as an assistant professor in 1993. Here, he switched his attention from oligodendrocytes to the other forms of glial cells in the brain – astrocytes (star-shaped cells) and microglia (the brain's immune cells). Barres and his team revealed how both cell types contribute to the formation, pruning and function of synapses and how these processes can be disrupted by certain disease conditions. Nature recently published a paper from Barres' lab describing the generation and behaviour of the neurotoxic A1 astrocyte subtype that is associated with a variety of neurodegenerative conditions. Since 2008 Barres was Chair of the Neurobiology Department at Stanford University, and in 2013, he was elected to the National Academy of Science – as the first openly transgender member.

Chapter 2: A Wizard amongst Muggles – Being Transgender

Ben Barres was not only a brilliant scientist but also an advocate for equal opportunities and openly discussed his experiences being transgender. He began his career as Barbara Barres, and underwent a sex change in 1997. Barres knows the difficulties and challenges women and LGBTQ+ individuals face. Admirably, he was never too shy to talk about being transgender in public, and with this hopefully paved the way for future discussions and awareness for LGBTQ+ individuals within academia.

In one of his guest lectures at Harvard and in several interviews, he states that, of course, he feared a lack of acceptance within the scientific community and how this would affect his career. Nevertheless, he underwent a mastectomy and treatment with high doses of testosterone while he was in his forties. Muscularity and

baldness soon came, and he also exhibited an inability to cry when transforming into a male. As a child he was always playing with trucks or model airplanes or dressed up as a football player or army man for Halloween. The confusion started in his teens when his normal female body transformation complicated things: growing breasts, shaving legs, dressing up and wearing make-up felt utterly wrong. Looking in the mirror was difficult for him back then,

“During my Bachelor studies, my neurodevelopment professor told me to read up on a paper of this excellent neuroscience professor at Stanford University, who back when that paper was published was named Barbara, not yet Ben Barres. It was the first - and only time - I had heard about an openly LGBTQ+ person at such a prestigious research institution. Being aware of “his story”, I enjoyed reading his papers even more later in my career – knowing he’s not only a brilliant scientist but also a role model for standing up in one’s beliefs against all challenges.”

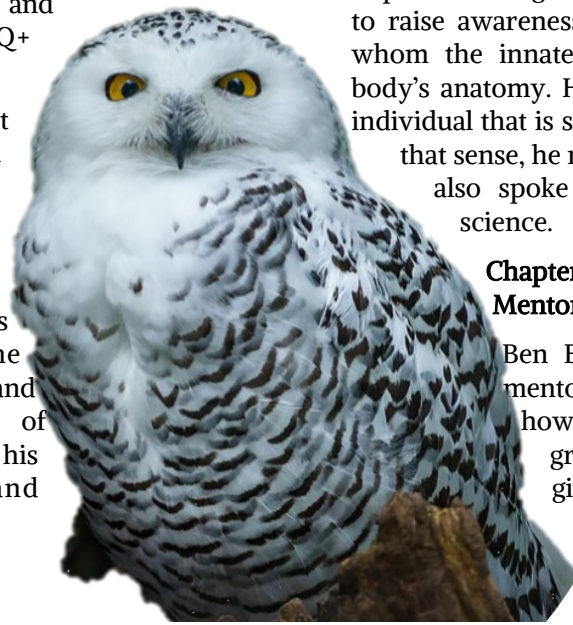
- Constanze Depp

and pictures were not saved because he always felt uncomfortable. Sadly, throughout his early years he was ashamed to discuss his feelings with anyone. In 1997, he decided to undergo a sex change not because he wanted to achieve a male advantage but because of his lifelong gender identity confusion. After changing his sex Ben was far happier than ever, not ashamed anymore and overwhelmingly supported by his colleagues. In an interview, he says that life is much better now that he has pictures taken, is willing to date, and has gained a unique perspective on how women are treated in academia. The biggest difference he noticed was that people who did not know he was once a woman treated him differently, and with far more respect. Some even commented on his research being better compared to what his sister did in the past.

Men started telling him things that they would not have said if he was still Barbara; for example, how strongly they believe that gender stereotypes are true. Gaining these experiences, Barres openly discussed the importance of gender identity and for every individual to raise awareness and increase acceptance for those whom the innate sense of gender differs from the body's anatomy. He tried to encourage every LGBTQ+ individual that is still closeted out of fear to open up. In that sense, he not only pursued his own identity but also spoke up for minorities and women in science.

Chapter 3: Teaching Dumbledore's Army – Mentoring

Ben Barres also put a lot of effort into mentoring by guiding young scientists on how to select a graduate advisor and how group leaders and lab heads should give young researchers the freedom



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for project porting. In two publications in *Nature* and *Neuron* he discusses these important topics – and his clearly stated opinion on supervision surely raises some discussions.

good mentor (and clearly Ben Barres was one of those). Guidance is most important because as a graduate student you will need guidance at the beginning and you should also have enough space to develop your own thoughts and experiments. Accepting failure (and

"During my Master studies I already focused on glia-axonal interactions in the nervous system. If one works in this field of research you come across the name Ben Barres quite frequently. Often I used the RNASeq brain transcriptome database that was published by the lab of Ben Barres and I also enjoyed reading articles from his lab. It took a long time (until I actually finished my master thesis) that I heard of Ben Barres being transgender. I started digging out some interviews and articles about him and found his story really encouraging. If it was the fact that I did not know beforehand or if I was just curious that someone so famous in the field is transgender I cannot recall properly. I am still fascinated that he was so open about his emotions, fears and his active engagement to raise awareness which so far seemed rare in the scientific community. I admire not only his scientific way of thinking but also how he tried to discuss general topics within academia be it equal opportunities, gender awareness or how mentoring should be changed to thrive future generations of scientists."

-Maria Eichel

However, it is uncommon nowadays for high-ranked scientists to openly discuss what might be going wrong and advise young researchers on how to find their way. Ben Barres did have an opinion and was keen enough to share his thoughts. If you read one of the numerous tributes to him there are always quotes from people who worked in his lab about how a good supervisor he was. So, what are his statements that might be of interest for us as young researchers in regards finding a mentor?

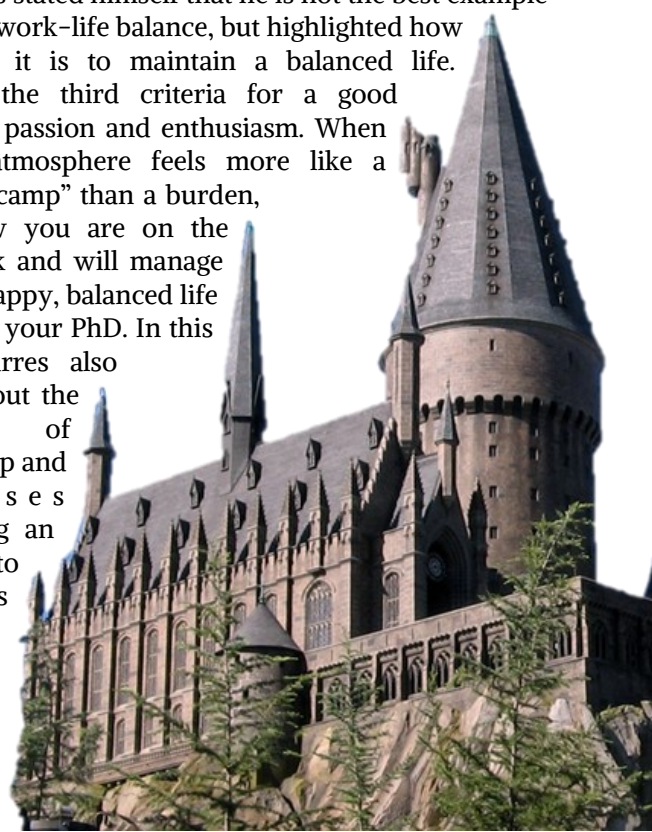
One key message is being diverse and having an open mind. Young scientists should not look for the one researcher who works on a specific topic they think they are interested in. As scientists, our background is diverse and so should be our interests. Therefore, one should go out and try to find several topics, do various lab rotations and network to broaden horizons

But, what is a good mentor and how can one be identified? Barres mentions three criteria that sound logical, but are forgotten by majority of young researchers. First of all, scientific ability as well as mentoring ability are most important. Often, after finishing a study one is not equipped for deciding what is good research. Nevertheless, one can search for a "future" lab by noting which journals they publish in, and if the papers are well-written and cited. Also, one should never be too shy in asking for the CVs of potential mentors and inquire with graduate program advisors, faculty members as well as other lab members for their thoughts about the lab.

Time is also of essence, so a young group leader might also be an excellent choice because he or she just recently moved from bench to office (if even so) and has time to mentor because the labs are often quite small. With this, we come to the next part of being a

let's be honest it happens) even if this means repeating the experiments several times (and maybe wasting time) is important for scientific development. Additionally, one should never forget that writing and reviewing papers and grants and analyzing data are things that have to be learned, in the best case scenario from your mentor. It is beneficial to have someone pushing you to be the better version of your scientific self by giving talks, attending conferences and presenting posters. Last, but not least, providing career guidance is an important task for supervisors. Not everyone can or will stay in science, but if most of the former lab members indeed leave science this might be a sign for unsuccessful mentoring.

Ben Barres stated himself that he is not the best example of a good work-life balance, but highlighted how important it is to maintain a balanced life. Actually, the third criteria for a good mentor is passion and enthusiasm. When the lab atmosphere feels more like a "summer camp" than a burden, you know you are on the right track and will manage to live a happy, balanced life and finish your PhD. In this article Barres also writes about the challenges of mentorship and proposes developing an M-Index to assess



mentoring. This index would take into account good scientific practice, and anonymous feedback tracked by the university or institution to acknowledge good mentorship with awards and/or consideration for grants.

In his other article, Barres focuses on the topic of project porting, which is the idea that postdocs are allowed to take their projects with them when they leave to start their own labs. He argues in favor of this because he believes it is a sure way to drive innovation and discovery. Since this is a taboo topic Barres decided to openly communicate about research freedom at the end of his long academic career. In this article, he again highlights the importance of selecting a mentor/PI and openly asking about mentoring and research ownership policies before starting a position. The Neurobiology Department at Stanford University has a long history of allowing postdocs to port their projects. Over the past 25 years, this resulted in an astonishing 70% of postdocs running their own labs and/or are on the way to a professorship. Barres regarded the success of his trainees with high priority to honor the next generation of scientists.

Often scientists, lab heads, group leaders and mentors focus solely on academia and research because papers have to get published and science is competitive. However, communication about how we can make science a better place and nourish future scientists should be addressed by all high-ranking scientists. Mentors like Ben Barres motivate young researchers to perform at their best, help out those of us that are still looking for their path and encourage every researcher to think forward and drive science.

Chapter 4: Black Magic Defeated? – Open Questions

Early glia-researcher Professor Klaus-Armin Nave, from the Max Planck Institute for Experimental Medicine in Göttingen, values Barres' work for its role in helping the glia research field become a mainstream research field in neuroscience. Nave and Barres met for the first time as graduate students at a conference where Ben – back then Barbara – stood out due to her proactive character and active engagement in plenum discussions. In an interview, Nave pointed out that Barres was genuinely open about both his transition and, later on, his illness. He further emphasized that the glia community respectfully took notice of Barres' transition without overrating it – with his research, not his gender in focus.

Barres transitioned from female to male in 1997 being in his 40s and well settled

in his career. The scientific community might have reacted differently to Barres' transition if it had occurred earlier in his career path. Would an earlier transition have promoted his career due to earlier recognition as a male scientist, sparing him from the challenges he had faced as a women in obtaining a tenure track position? Or, would it have negatively impacted his career prospects due to discrimination against transgender people? While Barres' career and story is indeed inspiring for other young LGBTQ+ scientists and has sensitized the scientific community to gender equality, sexism, mentoring issues and the topic of sexual identity, its long-lasting impact on the scientific community will hopefully emerge in the future – in the ever-rising number of female professors and group leaders recruited, in the evaluation of academic achievement, also in regards to mentoring skills and a tolerant, open lab atmosphere in which young scientists can flourish, both personally and scientifically.

Epilogue: In the Pensieve – Remembering Barres

In this last section, we have gathered a number of tributes, several landmark reviews as well as EO and mentoring related commentaries for the interested reader. The Offspring team had asked Barres for an interview in 2017, but he unfortunately had to decline the offer due to his ever-worsening health. In his last month, Barres practiced what he preached by keeping himself busy writing recommendation letters for his mentees, making sure their careers progress smoothly into the future. We feel sorrow we never met him in person. To put it in Harry Potter terms: We would have wished immortality for this inspiring scientist and exceptional EO spokesman to be granted by the philosopher's stone.

Further reading

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Allen, N. J., & Barres, B. A. (2009). *Neuroscience: glia—more than just brain glue*. *Nature*, 457(7230), 675.

Eroglu, C., & Barres, B. A. (2010). *Regulation of synaptic connectivity by glia*. *Nature*, 468(7321), 223

Barres, B. A. (2017). *Stop blocking Postdoc's path to success*. *Nature*, 548, 517-519

Barres, B.A. (2013). *How to Pick a Graduate Advisor*. *Neuron*, Volume 80, Issue 2 , 275 - 279

Further watching

<https://www.youtube.com/watch?v=wMLbuHhZwk&list=PLVV0r6CmEsFz74WZPchYPmr9I5oSBLAAR>

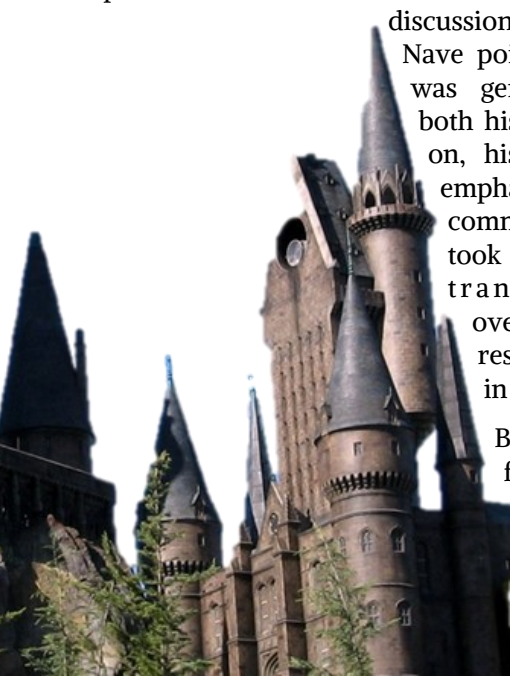
<https://www.youtube.com/watch?v=Q5La-ZPjJdM>

Further tributes

<https://www.nytimes.com/2017/12/29/obituaries/ben-barres-dead-neuroscientist-and-equal-opportunity-advocate.html>

<https://quadblog.stanford.edu/2017/12/27/in-memory-of-ben-barres-a-personal-tribute/>

<http://jcb.rupress.org/content/217/2/435?etoc>



The

#MeToo

Movement

BY MAYANK CHUGH, ALBA GONZALEZ
AND JULIAN DAVID ROLFES

from Hollywood to
Our Bench

Sexual harassment is an endemic and dismissive predation that is as prevalent in academia as it is in other fields and workplaces. Certainly, in all cases, dominance and power have made harassment and its concealing properly executable. Women worldwide can surely attest to it. While the stories about assaults are outspoken and highly relatable, the voices against the perpetrators are quiet. Recently, the #MeToo and #TimesUp movements that gained momentum in response to the Harvey Weinstein scandal have encouraged women globally to come together, share their stories and create awareness of sexual harassment – a menace that penetrates cultures and nations. Although these movements and stories are from Hollywood, their roots and messages are not. They are now a testament of sexual misconduct in the workplace. There are many such stories that lie hidden at domestic workplaces and benches across the world. This article is in support of #MeToo, #TimesUp and the other unheard voices to raise awareness of sexual harassment, especially in our offices, labs, and in academia.

#MeToo – Talking about sexual harassment

The #MeToo movement dates back to 2006 when American civil rights activist Tarana Burke used the phrase “#MeToo”, the only thought she could think of, in response to a woman who confessed to being a victim of sexual violence. This phrase was meant to raise awareness of the pervasiveness of sexual abuse and assault in society, and became increasingly famous over time. Eight years later, as a result of previously reported sexual harassment cases inside the film industry, the well-known activist and actress Alyssa Milano unleashed the #MeToo movement on Twitter, encouraging sexual harassment victims to post “MeToo” as part of their status update. #MeToo gave a voice to other well-known actors and actresses, and tens of hundreds of others who have been sexually harassed by their male peers. This triggered a chain of consequences for the offenders, where many were put in quarantine, got fired from their jobs or were formally impeached. The reach and impact of the #MeToo movement went way beyond the red carpet. It has become an international movement, raising awareness of sexual violence around the globe. Moreover, it

highlights the prevalence of sexual violence in certain workplaces, such as the financial, political, military, and academic environments. Women are especially vulnerable in these environments where they face underrepresentation, fierce competition, and where men thrive in the scale of power.

The Weinstein effect and #MeToo have also inspired the birth of the #TimesUp movement from Hollywood celebrities, thus creating more awareness and giving a voice to the women in the entertainment industry and at their workplace.

The #MeTooPhD – Sexual harassment in academia

Academia, as we know it, is a highly hierarchical field. The people in power are the gatekeepers of careers and funding opportunities, and sadly, most of them are men. Academia is just like Hollywood for a variety of reasons. First, men in academia outnumber and shadow women to a very significant level. In the last few years, efforts have been made to promote gender equity in academia with women making it to universities and positions of power; however, it still requires strenuous determination and time to reach even close to equality.

Second, the field of academia is hyper-competitive as there are only a few professional opportunities available compared to the long list of qualified and talented aspirants. Given the cultural diversity and international environments in our offices and research labs, one might imagine that we are way above traditional gender stereotypes and are in an equal and scientific endeavour. We might imagine professors and students going to dinners, conferences, retreats, and getting drinks together. However, this is not the case. Women in academia are still sexually assaulted and harassed by men in power, and due to the tight job market, their voices remain quiet. The ones who choose to speak up are forced to switch jobs entirely, depriving the field of their talent, their passion, and their insights.

In the wake of the #MeToo movement and to show how ubiquitous the problem of sexual harassment is in academia, former tenured professor Dr. Karen Kelsky at the University of Oregon and Illinois Urbana-

Champaign, who now runs an academic job consultancy blog, 'The Professor is in', launched an anonymous survey and #MeTooPhD tag on Twitter in December 2017. The aim of this survey is "Providing a place for women to share stories without fear of censorship or judgement, to know they are not alone, and to find strength in numbers and a foundation from which to recover and perhaps take action", writes Kelsky on her blog. This anonymous survey contrasts law student Raya Sarkar's initiative, which released a list with professors' names who were accused of sexual harassment, promoting the "naming and shaming" tool against sexual abuse.

Kelsky's survey spreadsheet has more than 2000 entries as of April 27th, from over 30 fields of study. The survey shows that most entries are from graduate students, followed by undergraduate students, non-tenured and tenured professors. The stories on this survey share the well-known symptoms of sexual

Timeline of Events

#MeToo is a social media movement with the aim to demonstrate the prevalence of sexual assault and harassment.

2006 – Tatiana Burke first use the phrase "Me Too" to raise awareness of pervasiveness of sexual abuse and assault in society.

Oct 15, 2017 – #MeToo movement started with the actress Alyssa Milano, and went viral in social media.

Until Now – #MeToo movement reached worldwide impact, raising awareness of sexual assault at the working place.

#MeToo

Oct 5, 2017 – Actress Ashley Judd accuses film producer Harvey Weinstein of sexual harassment.

Oct 31, 2017 – Over 80 women had made allegations against Weinstein, the power of this movement was called the "Weinstein effect".

Overview of the events in the #MeToo movement

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harassment, as Kelsky points out. First, the ubiquity and severity of sexual abuse ranges from glances to proper stalking for months and years to intimidation and rape. Second, there is 'the sheer force of patriarchal solidarity' that protects the assaulters over victims. This, once again, speaks to the power and dominance that rests in patriarchal academia. Third, there is the loss of women from academia. Many women who shared their stories confessed to a change or loss of projects, supervisors, institutions, and/or funding.

These problems are unsurprising to the women in academia. Many women can relate to it and speak about how pernicious the problem of sexual harassment in academia is. In one of the Quartz interviews, Dr. Rebecca Kukla, a Philosophy Professor at Georgetown University, says women have become used to such male behaviour – 'guarding their bodies and keeping things professionally whenever any acts happen. It's a part of job training'. The truth is many women worldwide struggle with anxiety, vulnerability and confusion about the daily misconduct at their workplace, in addition to keeping their families and careers together. The question before us now is: what can we do as a community to safeguard women, to give voices to long-silenced victims and to encourage them to speak up against their assaulters?

From #MeToo to #Oprah

The Max Planck Society (MPS) released an official statement about sexual harassment and sexual violence. Besides a summary of the legal situation in Germany, including the definition of the terms 'sexual assault' and 'sexual violence', the statement also includes a recommendation for disciplinary actions for employers, "ranging from admonition and warning to transfer to a different workstation ... up to dismissal". The employer is also encouraged to take training as part of the disciplinary actions, as well as preventive and clarifying actions. However, the fact that no MPS-wide guidelines exist to this effect makes the appropriateness of the disciplinary action completely dependent on the employer.

Lastly, the possibilities for victims are summarized, i.e.

talking to the internal EO Officer, the MPS Central EO Officer or the Works Council. It's noted that complaints can be made "informally, including verbally or electronically." While the person concerned does not have to be informed until consequences are agreed on, the contact between the victim and the offender should directly be minimized as far as possible. However, we still stand at the same spot. Max Planck Institutes are also quite hierarchical, once again making reporting difficult. This is especially true considering offenders are often the ones who would decide on disciplinary actions. The fact that there is a lack of strict guidelines from the MPS is another impediment to the reporting of such cases.

Although the MPS is aware of the impact and prevalence of sexual violence and has formally created a guideline, more effort should be put towards enforcing specific actions against the offenders irrespective of power and to create an appropriate platform for reporting cases of sexual assault. The Equal Opportunity group at the Max Planck PhNet fights for these rights.

While the institutional and legal actions take their own shapes and ways, we as colleagues, as men, as women and others who we choose to be, should stand in solidarity and support the voices of those who suffer. As Oprah Winfrey put it in her recent Cecil B DeMille win, "When that new day finally dawns, it will be because of a lot of magnificent women, and some pretty phenomenal men fighting hard to make sure that they become the leaders who take us to the time when nobody ever has to say, 'Me too' again."

Further reading

To read the Max Planck Society's statement on sexual harassment and sexual violence, please visit <https://www.mps.mpg.de/5054710/Sexual-harassment-and-sexual-violence.pdf>

Contact of the MPG Central EO Officer: Dr. Ulla Weber (ulla.weber@gv.mpg.de)



Alyssa Milano 

@Alyssa_Milano



If you've been sexually harassed or assaulted write 'me too' as a reply to this tweet.

9:21 PM - Oct 15, 2017

♡ 53.4K 💬 92.9K people are talking about this

Original 'Me too' tweet by actress Alyssa Milano

Disability Awareness Day: Lessons from Stephen Hawking

BY YORICK PETERSE

Yesterday, December 3rd, was the International Day of Persons with Disabilities. This Awareness Day first initiated in 1992 by the United Nations with the aim “to promote the rights and well-being of persons with disabilities in all spheres of society and development, and to increase awareness of the situation of persons with disabilities in every aspect of political, social, economic and cultural life”. Part of the rights of persons with disabilities is to live a life as close as possible to ‘normal’. Such a life, includes having the ability to perform a desired job, if reasonable accommodations can be made to allow this. When this concerns working in science, some fields can more easily accommodate persons with disabilities than others. Think of making an office environment wheelchair accessible versus realizing wheelchair access in a sterile laboratory environment. Yet, before one instantly looks at the limitations of the efforts that can be made, one should also consider the possibilities of enabling some people to work as scientists.

To emphasize this, let’s consider one of the best-known living* scientists of any field at this time: Stephen Hawking. Hawking was diagnosed with motor neuron disease (ALS; well-known from the ice-bucket challenge) in 1963 at the age of 21, shortly after starting his graduate program at Cambridge University. His initial prognosis was a life-expectancy of only two years, as is common with ALS. However, despite his difficulty walking and his slurred speech, his supervisor encouraged him to continue his work. Indeed, he successfully submitted his thesis in 1966, and won a fellowship to continue working as a scientist. Over the following decades, the progressive nature of his disease required changing accommodations from his environment. By the late 1960s, he was bound to a wheelchair, and he and his family had to start a campaign for wheelchair accessible facilities at the university in the 1970s. Several graduate students have lived with Hawking and his family to assist with his care and work. In the late 2000s, he lost the ability to drive his wheelchair independently. His speech gradually deteriorated to such an extent that he changed from using interpreters; a spelling card directed with eyebrow movements; a hand-, and later a cheek muscle-guided computer; to eventually a word-predicting program based on his brain activity and facial expressions. Due to an environment that enabled him to work, Hawking was able to make outstanding contributions to theoretical physics and cosmology; his research has led to an entirely different understanding of the universe.

Apart from his contributions to academia, Hawking has also actively brought science to the broader public with his own popular science works, and by motivating others to participate in science communication. Moreover, after initial reluctance, he became an advocate for the rights of persons with a disability, and showing the potential of persons with disabilities.

Further information:

<http://www.un.org/en/events/disabilitiesday/>

<http://www.hawking.org.uk>

The Theory of Everything (2014 film by James Marsh)

**This article was written and released before Stephen Hawking’s death in March 2018. Our thoughts are with his family and friends.*



The importance of a healthy mind in research: A guide to the available re- sources to achieve mental wellness

BY AIDA AHMADI AND MARIA EICHEL

In the past few years the number of individuals suffering from mental health issues has been rising throughout society. It has become clearer that young students, doctoral researchers and postdocs are affected by constant stress and struggle with mental health problems similar to those in other top performance jobs. The Offspring has featured articles about the history of melancholy and depression, mental health issues prevalent amongst PhD candidates, and most recently showcased a one-day workshop offered by the Max Planck Society regarding how mental health at top performance is addressed. In this article, we want to raise further awareness about this important topic by giving best-case examples of what universities, institutes, employers and employees can do to improve the situation. Often, people experiencing a decline in their mental well-being find it difficult to seek help – be it due to social stigma, lack of cultural knowledge, inadequate resources, or any other reason. We would like to shed some light on what can be done to improve the situation. In a university town like Göttingen that has a high number of students, scientists, and medical employees, and a city that is proud of the motto “Die Stadt die Wissen schafft” (“The city that creates knowledge”) one may wonder: is there a place where one can find help when feeling lost? Indeed there is; and it took us less than 5 minutes to find out where one could get assistance.

We interviewed Jens Hohmeier, a psychotherapist from the Psychotherapeutic Office for employees of the University Göttingen (PSM) as well as the Psychotherapeutic Outpatient Clinic for Students of the University of Göttingen (PAS). Both services offer counselling and psychotherapeutic help in situations of psychological problems and acute crises, and provide support in finding an outpatient psychotherapist or clinic if more intense treatment is needed. We asked Hohmeier several questions including how often doctoral students contact the PSM/PAS, how they can help, what the majority of doctoral researchers suffer from and why there is a difference between the mental health state of local and international doctoral researchers.

Since the PMS was founded in autumn 2016, an increasing number of doctoral researchers have contacted the office. They are heterogeneous when it comes to areas of expertise, nationality, university or institutes. The major reason doctoral researchers are feeling unwell is the impaired work-life balance due to the high workload and responsibility, leading mostly to depression-like symptoms. Disorientation and constant worry about the future is something most doctoral researchers mention during the sessions. Additionally, Hohmeier points out that being lonely is something quite specific for doctoral researchers compared to students or employees and one of the main reasons leading to mental health problems. At the end of a PhD, there are also occasions where students experience writer's block, anxiety and fear of exam or talks. Of course, there are also private challenges such as family problems, broken relationships or the absence of a social safety network which could have additional impact on one's mental wellbeing. Moreover, we discussed the big question that appears to be the central problem most doctoral researchers face: What do I want?

Science is a highly competitive field where stress is daily business as in many top performance jobs. The competition is really high and there is no guaranteed job security in science for young motivated students. Leaving academia can be an option, though often not an attractive one for those whose passion lies in research, not to mention that workload and responsibility are also high in industry. If one is interested in being a researcher, one constantly worries about being fast enough, having a high ranked paper and the right ideas at the perfect time. Over the years, an increase in the number of doctoral researchers per supervisor/professor has become apparent. Nowadays it is quite common that supervisors have more than 5 or 10 students at the same time leading to doctoral researchers being more independent and solely responsible for their own projects. While a certain degree of independence is beneficial during these crucial years for an emerging scientist, lack of

mentorship can lead one astray both scientifically and professionally. The question of “What am I doing?” and “What do I actually want?” is something we all ask ourselves, especially the closer we get to the finish line. Finding answers to these questions often takes long, also when consulting professional help because in the end one has to find a personal answer.

The PSM offers private as well as group sessions. However, due to tight working schedules, doctoral

*There is no matter as such -
mind is the matrix of all matter*

- Max Planck

researchers do not attend group meetings very often but prefer private sessions. Therefore, the PSM provides up to 10 sessions (which can always be adapted) and also supports finding a psychotherapist if there is the need for a more intense treatment. Especially for international researchers that are not familiar with the German health system, it is important to get help at this stage. With an increasing number of international students, universities and institutes have to build up a network for a closer collaboration which can ultimately lead to helpful changes for the long run. Nevertheless, Hohmeier points out that even with the increasing number of students, doctoral researchers and employees reporting mental health problems, there have also been improvements. People are becoming more open-minded when discussing mental health in public, and old taboos and conflicts are gradually broken down. Hohmeier closes with a powerful statement: “Science is similar to a highly competitive sport and one has to learn to set priorities to succeed”. Perhaps we should take his advice and try to give our mental health top priority!

So what if you don't live in Göttingen or don't have access to the services provided by psychotherapeutic clinics such as PSM or PAS? Our network of PhD student representatives with support from the Max Planck Society have been busy developing new measures to address issues related to mental wellbeing. The following is a summary of the current efforts:

- A one-day workshop titled “Mental health at top performance - Stress management for doctoral researchers” was held in Munich as part of the Operational Health Management initiative. An Offspring article about the seminar can be found here
- A series of five four-hour long workshops spread over a month were held in Garching in June 2018 as a pilot project in collaboration with Techniker Krankenkasse (TK) and the local International Max Planck Research School (IMPRS). The in-

depth series comprised of 12 doctoral researchers with “Mental Strategies for Doctoral Researchers” as the theme. The sessions focused on understanding stress and its effects, providing tools to identify personal stressors and protect oneself from stress by setting limits and accepting support. Time management and self-organisation methods as well as mindfulness and physical relaxation exercises were introduced to help prevent and manage stress more effectively.

- A collaboration with a psychiatric out-patient clinic started in Dortmund in June 2017, with the intention to offer a weekly telephone helpline for crisis intervention for employees who find themselves in psychosocial difficulty. The anonymous and strictly confidential hotline is offered once a week for one hour. Psychologists and psychiatrists are available to answer the calls, providing support in both English and German.
- A questionnaire is provided within the Max Planck Society to evaluate psychological stress. The document was published in chapter XVI.4.4.05 of the MPG Organisationshandbuch last year and is recommended for obtaining a first evaluation. The Environmental and Safety Representative, Dr. Christoph Kolbe, encourages all institutes to use this checklist to assess their risk of psychological stress and would be able to provide support. Some institutes that have already used the checklist are planning to organize workshops to discuss the results with their staff. The Max Planck Society and Dr. Kolbe are open to explore further courses of action for the next steps.
- The close collaboration between the MPS and TK allows for individual institutes to create local initiatives that best fit their needs. For example, yoga or back training classes can be organized, most of the cost of which could be reimbursed.
- The PhDnet is in the process of developing an online tool dedicated to emotional intelligence and awareness.

We hope that this article has not only raised your awareness about the importance of mental health but also inspired you to initiate some projects that could benefit you and your fellow researchers. Why not be proactive and contact your local student representatives, IMPRS coordinators or corporate health management representative to launch some of these measures at your institute?



Mental Health at Top Performance

BY RAED HMADI



On the 20th of April 2018, the Max Planck Society offered a one-day workshop titled “Mental health at top performance – Stress management for doctoral researchers” as part of the Operational Health Management project. The workshop took place at the society’s Administrative Headquarters in Munich, Germany, and was conducted by Mrs. Judith Bergner.

A large number of individuals suffer from mental health disorders, ranging from anxiety and burnouts to depression and substance abuse. A recurring theme of discussion and debate is mental health at the workplace, especially for academic employees such as doctoral and postdoctoral researchers. The aforementioned workshop began by highlighting some key statistics about depression. In fact, depression affects more than 300 million people globally, impacting more women

than men. In Germany, around 8 million employees suffer from exhaustion or anxiety disorders (Ärzteblatt vom 23. Februar 2017, WHO: Millionen leiden an Depressionen) with different symptoms, such as insomnia, heart attacks, etc. Remarkably, countries with powerful, leading economies report higher percentages of people suffering from anxiety disorders, depression and burnouts. The burnout syndrome can be defined in 3 dimensions: Relationship to others, the self and work. Each dimension is characterised by different symptoms. When it comes to relationships with others, people suffering from burnouts show feelings of indifference and lack of empathy. To themselves, they exhibit irritability and tension. Workwise, lack of self-efficacy and losing sense of purpose are frequently reported.

“The ‘Stress management for doctoral researchers’ workshop was a real eye opener and a great opportunity to reflect on my own mental status. We learned about the basics of stress and burnout and their symptoms, which are often neglected by many students. Theory was followed by practical exercises giving us immediate ideas on how to keep our sanity in check.

I would totally recommend it to every doctoral researcher who feels stressed - take one day off from your everyday routine and attend the workshop, you might realize many things about yourself and learn how to deal with stressful factors in your life.”

Katarzyna Duda, PhD Student, Max Planck Institute for Immunobiology and Epigenetics, Department of Epigenetics, Freiburg im Breisgau

The burnout phenomenon can be influenced by many factors, such as cultural value systems (competition), work environments (bad leadership), and individual traits. For example, traits that increase the risk of exhaustion include success-orientation and competitiveness, perfectionism, sense of personal indispensability, etc. In addition, the digital transformation and globalisation of our world has greatly impacted our societal values, encouraging “individualism”. The latter created several dilemmas at the individual level, like autonomy and independence vs. attachment and a sense of belonging.

Throughout the workshop, Mrs. Bergner suggested several guidelines and techniques to the attendees on

activities, setting the right priorities, and coping with negative emotions. For example, each doctoral researcher had to choose one picture from a set of various pictures that he/she felt connected to. Afterwards, they shared and discussed the personal meaning of the picture, focusing on its rational and emotional depths. The exercise aimed to clarify the need to look at the bigger picture sometimes, and to enjoy the small cheerful things in life when work gets stressful and hectic. Another exercise the doctoral researchers performed was listing issues that cause stress (thesis writing, preparing presentations, conflicts with colleagues, etc.), followed by the action needed to solve them and the amount of energy released afterwards (on a 100 units scale). Doing this exercise on

“I really liked how the workshop 'Mental health at top performance' focused on stress management and burnout topics that many people suffer from during academic life. Unlike other workshops that require sitting in a room for long hours, it was really fun with small sportive games and outdoor exercises that prevent being overwhelmed and help to regain attention. The instructor was very experienced and talented, and provided a broad mindset and useful tips to tackle stress and burnouts. I recommend everyone to join this workshop and adapt those tips in their working life, because mental health is as important as your career!”

Öyküm Kaplan, PhD Student, Max Planck Institute for Experimental Medicine, Department of Molecular Neurobiology, Göttingen

how to maintain a balanced and healthy lifestyle. First, she explained how to use the brain resourcefully by understanding the different aspects of the human brain (right vs. left hemispheres). The left hemisphere, responsible for the “state orientation”, is involved in rational thinking and analyses, whereas the right hemisphere, responsible for “action orientation”, is involved in instincts, memory, and intuitions. Proper communication between both hemispheres is indispensable for an attentive mind free of exhaustion or stress. Second, she highlighted the importance of energising the spirit by finding balanced self-motivation and self-management, resulting in coherence and inner balance. Furthermore, she suggested different activities that doctoral students can perform regularly, such as practicing mindfulness, setting up achievable to-do lists, avoiding over-commitment, and remembering the big picture and the reason they entered academia in the first place (passion for their field of research, freedom, flexibility). Mrs. Bergner also carried out various exercises that helped the doctoral researchers engage more in relaxing

a regular basis can help doctoral researchers prioritize achievable aims and encourages them to finish their work without stress.

In conclusion, mental health at top-performance jobs remains a crucial topic that requires effective measures in order to reduce stress and encourage a balanced life, especially when it comes to doctoral researchers. However, discussing mental health is the first step in the right direction. If you would like to get more information about the workshop, you can contact the instructor (bergner@skillfactors.de) or The Offspring team.

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Otto Hahn Medal: Outstanding Young Scientists

BY RAED HMADI

The Otto Hahn Medal is a prestigious prize awarded by the Max Planck Society to young researchers who have completed their doctoral studies in the natural or social sciences at one of the Max Planck Institutes. During the society's annual meeting, thirty junior scientists are awarded the medal in recognition of outstanding scientific achievements. The award is intended to motivate young, gifted scientists to pursue a future career in research, may it be at a university or research facility. Awardees are selected from three main categories: Biology and Medical Sciences, Chemical and Physical Engineering, and Social Sciences and Humanities. The award comes with a monetary sum of 7,500 Euros. Interestingly, the award's name derives from Otto Hahn, a German chemist and Nobel laureate, who served as the first president of the Max Planck Society.

The Offspring had the chance to meet with some of the 2018 Otto Hahn Medal awardees to ask about their doctoral experience and advice they would give to younger scientists in the early stages of their studies.



Paul Mollière

Paul Mollière is an astrophysicist who studied and pursued his PhD in Heidelberg, Germany. Currently, he is working at the Leiden Observatory in the Netherlands.

What got you first excited about science?

P.M. I think the earliest science-related interest I had was when reading children's books on astronomy, when I was quite young. It is thus maybe not too surprising that I also ended up in astronomy. I love how it combines scientific reasoning with room for imagination: we often know very little about a given astronomical object. Thinking about previously unknown processes, and how they could potentially be inferred, is what makes astronomy particularly interesting.

What made you pursue a PhD in science?

P.M. I enjoyed working in science when I did my bachelor and master, doing a PhD was a logical consequence of wanting to keep working in science.

What was your project about?

P.M. I constructed a computer model which calculates the temperature and abundance structures of exoplanet atmospheres (mainly strongly irradiated gas giant planets, like Jupiter, but hotter). From this I could make spectral predictions and study how various parameters impact the resulting planetary structures and spectra. I also studied how mineral clouds (which condense around 1,600°C) may be detectable in such atmospheres with the upcoming James Webb Space Telescope.

What was the best part about pursuing a PhD? And the most difficult?

P.M. The best was the sense of independence, constructing one's own code and finding out in which direction the next steps need to be taken, which physics to include etc. This also made it difficult, however. One develops a kind of emotional bond to the code / project. And if something is not working, or there is a hidden bug somewhere, that can actually be pretty stressful and depressing.

What are you doing now?

P.M. I am now a postdoc in Leiden, Netherlands, where I continue my work on exoplanets.

What advice do you give to early starting PhD students?

P.M. If you are working very hard, try to give yourself a break every once in a while. Meet your friends and family. I know this is much easier said than done, and took me a long time, but finally it turned out that I wasn't less productive, and happier in my life in general.

What would you be working on if you weren't a scientist?

P.M. I would probably try and find something connected to renewable energies, like an organisation which promotes climate-friendly technologies. As an (exoplanet) atmospheric scientist I am aware of what humanity is currently doing to itself, and I think we actually need to make every effort to mitigate our own impact on this planet. Sometimes I feel bad about myself, because I essentially turn a blind eye to this when continuing to work in astronomy. But it is just too much fun...



Manuel Schottdorf

Manuel Schottdorf studied physics and neuroscience at the Universities in Würzburg, Rutgers, Göttingen and the Jülich Research Center. He grew up in Hammelburg; a small town in a region of southern Germany called Franconia.

What got you first excited about science?

M.S. Aristotle wrote in the first book of his Metaphysics that all “humans by nature desire to know”. I think that this is quite true and at least for me, the desire to know the causes of things has always been strong. Also, as long as we are consciously shaping the natural world, it is our duty to extend human knowledge.

What made you pursue a PhD in science?

M.S. I wanted to learn more about the principles governing the nervous system and contribute something meaningful in answering this question. Naturally, my project was far too risky and basic for a company and so I pursued a PhD.

What was your project about?

M.S. I developed a conceptually new experimental approach to conduct structure-function studies with

living neuronal circuits. I hope that at some point, we can engineer living neuronal circuits with specific functions to our needs. We might even come up with a language, similar to electrical circuits, to effectively represent connectomic structure and quantitatively understand circuit function.

What was the best part about pursuing a PhD? And the most difficult?

M.S. The best part of my PhD was clearly the tremendous freedom to develop my own ideas. The most rewarding thing about research is being the first one to ever see a particular phenomenon and push forth the limits of human knowledge. The most difficult part for me is having only 1/3 of my time free for research in the lab (besides writing/rewriting, doing administration, attending meetings and teaching).

What are you doing now?

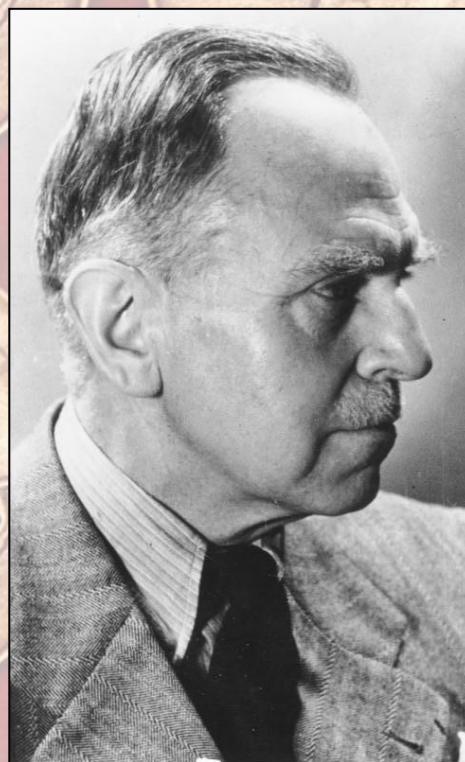
M.S. I am starting a postdoctoral position at the Princeton Neuroscience Institute to study cognitive functions in the nervous system, specifically working on memory and spatial navigation.

What advice do you give to early starting PhD students?

M.S. Find out what you deeply want to know, speak up and challenge established thinking and most importantly: your first duty is to the truth.

What would you be working on if you weren't a scientist?

M.S. I enjoy programming, engineering and building things. I like electrical circuits, optical elements and mechanical components, and over time I got quite good in making things. I might have ended up as an engineer.



Otto Hahn, 1954

Career Portfolio:

Karen Chandross

Senior Director of R&D Strategic Initiatives & Scientific Relations at Sanofi

BY MARIA EICHEL

The transition from academia to industry remains a question nearly every doctoral researcher faces during their PhD. Often, we ask ourselves “What comes next?”. The Offspring has dedicated a section to provide ideas on what to do next and to highlight different career paths of scientists within and outside of academia. Good news: we continue with our Career portfolios in 2018.

This time we had the chance to interview Karen Chandross who is senior director of Strategic Initiatives & Scientific Relations at Sanofi. Sanofi is a global biopharmaceutical company focusing on human health and is a leader in healthcare. With their research and development (R&D) and business areas, they cover diabetes & cardiovascular diseases, vaccines, Neurodegenerative diseases and Multiple Sclerosis, oncology and immunology, rare diseases, consumer healthcare, and generics. Karen joined Sanofi in 2000 and worked in R&D, focusing on Multiple Sclerosis for 15 years. She remains with Sanofi today, and has taken an interesting turn within the company. Before joining Sanofi, she did her PhD at the Albert Einstein College of Medicine between 1990 –1995 focusing on peripheral nerve regeneration, followed by a postdoc and senior staff fellowship at the National Institute of Health (NINDS) working on regeneration of the central nervous system. In this interview, Karen will tell you about her daily job life at Sanofi as well as challenges, changes and advantages of working at a Pharma company. Like others, she highlights how important our gut feeling and instincts are for making career decisions and how an open mind can lead up to more possibilities.

Tell us something about yourself. Who are you? What is your scientific background? What did you do in the past and where are you now?

I am a neurobiologist, received a PhD from the Albert Einstein College of Medicine in NY and did a postdoctoral and senior staff fellowship at the NIH-NINDS. I joined Sanofi in 2000 and never left: Spent 15 years working on Multiple Sclerosis (MS) research and early development focused on neuroprotective/

regenerative strategies before moving into my current role, which focuses on establishing new Research & Development (R&D) strategic initiatives that involve external partnerships.

What does your average day involve? What kind of challenges do you face? Do you have a routine?

My current role involves understanding both our internal needs and the unique strengths that external scientists can bring to addressing any gaps through cutting edge science, technologies and approaches. As such, much of my day involves building upon internal and external networks, listening to others and leading new initiatives. Challenges include securing support for and engagement around these initiatives and maximizing their value for our internal projects. I try to avoid routines, however, moving away from lab work lends itself to a lot more time on the computer. The good news is that if you don't feel fulfilled, there are many different career opportunities (within the same company) to fit your personality and career ambitions.

What do you enjoy most about your current job at Sanofi?

The opportunity to create new initiatives that through private-public collaborations and facilitate Pharma's direct access to innovations that can build relationships and bridges that can bring value to patients.

How did you benefit from your skills/knowledge gained during your PhD and time as a postdoc? Do you miss something about your job in academia?

My basic science and collaboration experience helped to secure a lab head position within Pharma. However, there is much more to learn about drug discovery and development beyond the basic science. It took me about 6–8 months to appreciate the concepts and, through different roles (lab head, project lead, group head, translational medicine lead, partner), many years to really understand what it takes to develop safe and efficacious drugs for humans. And I still learn something new every day. The key to flourishing in this environment is to embrace the reality that successes are

rare and emerge through many failures, so patience, persistence and adaptability is key. I have no regrets about leaving academia but also work hard to maintain these important cross-sector relationships.

Did you struggle with your decision to leave academia at that time?

Initially yes, but my passion for developing drug-based therapies to reverse the damage that MS causes and the opportunity to do something in Pharma that had never been done before (at that time) in the Neuroscience field made the transition easy.

How did you find out what you want to do?

I can't remember a time when I didn't want to be a scientist. However, my focus on MS was linked to losing a close friend. Watching her lose mobility, slowly, over decades and finally succumbing to the disease was heartbreaking. Feeling helpless to ease the pain and suffering of a loved one (or pet) is something we can all relate to and is a very strong motivator. This personal connection to a patient was my driving force.

Any plans for the next steps?

For most of my career I have focused on Neuro/MS. However, it was when I opened myself up to other opportunities that things really began to happen and, at this stage in my career, I'm open to all possibilities.

Any advice for young scientists and doctoral researchers on making career decisions?

Go with your instincts rather than succumb to external pressures. If you are truly interested in translating basic science knowledge into human solutions, then Pharma or Biotech is a great place to be and still the only place where you can go from idea to humans; providing an opportunity to explore careers beyond biology.

There is no right answer when it comes to starting out as an industry postdoc versus an entry-level biotech position. Doing a postdoc in pharma can provide useful translational experience and help you decide on your longer-term goal. However, an academic postdoc can serve you well if you end up deciding to go back into academia and this experience can also be used to leverage a better position in pharma. Pharma is hiring top talent from academia for leadership positions, so additional hands-on academic research and high impact publications, especially in the translational sciences, are helpful.

In Pharma, we work in teams around the common goal of identifying and developing new therapeutics to treat human diseases that are both safe and efficacious. This offers an opportunity to think outside the box and reach beyond the basic sciences to learn about the various aspects and stages of drug development. However, you may have to let go of your project if it is stopped or once it advances to another phase of development and work outside of your primary team



Karen Chandross at Mt. Lemmon, Arizona

on several different projects, or have to adapt to changes in strategic priorities and organizational changes. The bottom line is that you have to be adaptable and eager to collaborate.

At the same time, pharma jobs can be more stable than biotech and you have the opportunity to easily move around within or outside your company. Consider a 5-year plan to allow for the opportunity to demonstrate your leadership around a project or effort and the value that this brought, and use this experience to leverage a better position within your company or in the next company.

In general, be open to working on different things. Although having a particular expertise helps to get your foot in the door, in the longer term, there are more opportunities within a company for those with interests in several areas of pharma, especially in the event that an entire division or department is discontinued. Even the addition of a new branch to a company can provide another opportunity to work on new and exciting projects.

Can you tell us something surprising about yourself?

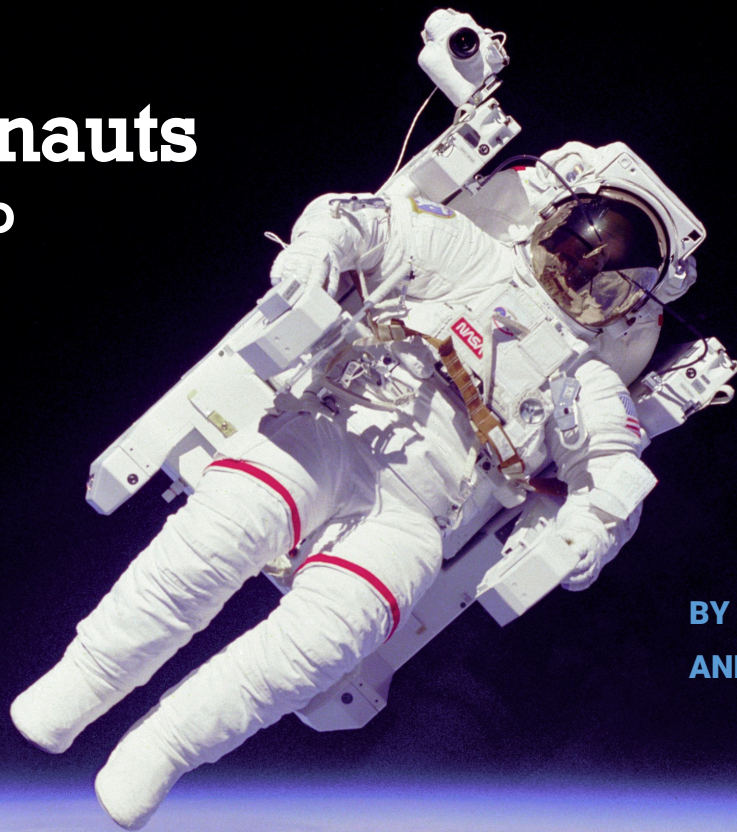
I love to do artwork and (for the smaller things) have a small Etsy shop together with my mother. I have always had a Siamese cat -- they are super smart and loving.

You are banned on a tropical island for a year. Name three things you would take with you because you cannot live without it:

A fully loaded and stocked yacht equipped with sonar, satellite, dingy; a hot tub; and flint/steel plus a sharp hatchet, just in case. I enjoy camping out but not for an entire year.

Angstronauts

Diving deep into the atomic realm



BY SHYAM KATNAGALLU
AND BAPTISTE GAULT

Stone age, bronze age, iron age: the tripartite divisions of historic time periods defined by materials. Materials have, are, and will continue to be the quintessential support for mankind's development. From the mundane, redundant task of driving to work, to putting Starman on a Tesla Roadster, to cruising the solar system, modern day technology was only made possible by the discovery of new materials. The smartphone, tablet, or laptop on which you are probably reading this article is more powerful than the computers used by National Aeronautics and Space Administration (NASA) to put a man on the moon in the 1960s. This is a direct result of the explosive advances made in materials science and technology.

The road to these achievements has been long and winding. Scientists had to rely heavily on trial and error until they started to exploit a panoply of characterization tools to understand and decipher the relationships between the material's physical properties (e.g. optical, mechanical) and its constituents and their arrangements. An examination of a piece of steel from a kitchen utensil, say a knife, under a light microscope reveals a rich and complex architecture of small crystals called grains, which form what is referred to as a microstructure. This microstructure combines with the

local composition (i.e. which atom is sitting where within this structure) to dictate the steel's properties and thus determine if it is suitable as a kitchen utensil or be rather in a nuclear power plant where the constraints associated with its operation will be vastly different over its lifetime. Microstructures can evolve or be tailored by the application of high temperatures or through deformations of the structure, thereby modifying these small crystals and the distribution of their constituents.

At this stage, we are well within the realm of atomistics, and the study of these microstructural features requires specific tools. Electron microscopes have been instrumental in this aspect as they can deliver part of this crucial information despite often being limited to analysing surfaces. Even with the most powerful microscopes, whose spatial resolution is sufficient to image columns of atoms through a very thin specimen (only 10s of nanometres, i.e. billionths of a meter), the information is averaged throughout the specimen such that the knowledge of the position and elemental nature of each atom within a material remains elusive.

Seeing atoms has been a daunting endeavour ever since they were hypothesized to exist in 480 BCE by ancient Greek philosopher Democritus or in 600 BCE by Indian

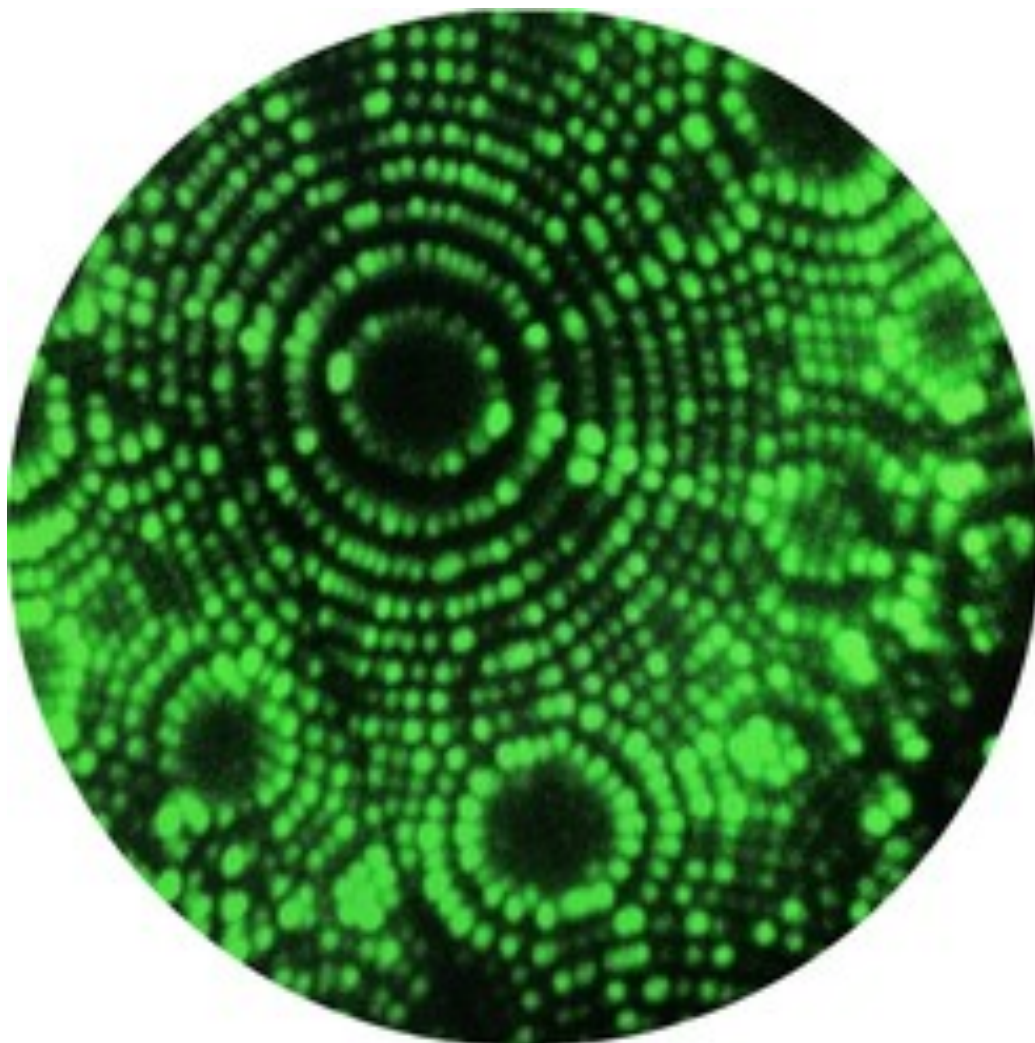
sage Acharya Kanada. The first atomic theory was developed by John Dalton in 1810, but the first direct images of individual atoms only came thanks to Erwin Wilhelm Müller's 1951 invention called the field ion microscope (FIM): On October 11th, 1955, Müller, together with his PhD student Kanwar Bahadur, saw the individual atoms of tungsten.

FIM is a relatively simple microscope and can be easily built for a high school science project. The atomic resolution is achieved by ionizing gas atoms right above the surface of a very sharp needle, whose end radius is less than 100 nanometres. The sharp tip can conveniently generate colossal electric fields at their apex when subjecting the specimen to 1-10 kV of electrostatic potential. Such electric fields can rip apart the material constituting the specimen in a process called field evaporation that turns the surface atoms into ions. By collecting these ions with a particle detector, the impact position can be recorded along with the time it took for the ions to fly from the specimen towards the detector. The times-of-flight allow for discerning the elemental nature of each evaporated ion (i.e. a heavier ion takes a longer time to reach the detector than a lighter atom). A technique that combines time-of-flight mass spectrometry with a high-resolution projection microscope is called atom probe tomography (APT). Knowledge of the ion projection allows the conversion of the impact positions and the arrival sequence of the ions into a three-dimensional

map that reveals the location of each element with near-atomic resolution.

FIM and APT enable materials scientists to do a range of analysis, to extract interesting features, their distributions, compositions and their structure, all pertinent in the quest to decipher the structure-property relationship of materials. The Department of Microstructure Physics and Alloy Design at the Max Planck Institut für Eisenforschung houses three atom probes called LEAPTM (local electrode atom probes). These instruments have been instrumental in the research efforts to understand fundamental material physics, e.g. how phases form or how atoms of a specific element segregate to different microstructural features, and in what quantity etc. This research enables us to tailor new, advanced materials with enhanced performance. Scientists of this group are the curious "Angstromonauts" and APT is their spaceship. The new crusade will target the tiniest of atoms, hydrogen, within complex materials that make up the computer on which you read this, the chair on which you sit, the rails of the tram that you took to work, and the plane that took you to your last conference.

A field ion micrograph of tungsten needle, each bright spot corresponds to individual tungsten atoms.



What's in a Name?

The stories behind some of science's most curious

BY MATTHEW H.K. CHENG AND RAED HMADI

Scientific research is an undertaking that requires a healthy dose of dedication. From the late nights in the lab to an inspired twist to a particular experiment, it could be argued that there is a bit of us in every scientific advance we make. This is especially true when a new phenomenon, molecule, or species is discovered, earning us the privilege of naming it. While some discoveries are named in honour of the scientists themselves, like the “Hawking radiation” or the process of “pasteurization”, others draw their names from other sources of inspiration. Whether they allude to literary references or reference pop-music giants, these names are often memorable and show us a more personal side to the scientists who chose them. Here are 10 of the Offspring's favourite names in science and the stories behind them.

Bug (Field: Computer Science)

Today, the term “computer bugs” commonly refer to glitches or unexpected anomalies in programming. However, the term was inspired by an actual bug! In 1964, American computer scientist and U.S. Navy rear admiral Grace Hopper was working at the Harvard Computation Laboratory when her team found a trapped moth to be the cause of errors in the Harvard Mark II computer. The moth was removed and appended into their log book.

Cloche (Field: Developmental biology / Organism: *Danio rerio* (zebrafish))

This zebrafish gene was named after the word “cloche”, French for “bell”. The name was inspired by the bell-shaped hearts of zebrafish mutants that lacked this gene. The cloche gene directs the timing and onset of a developmental program responsible for blood and blood vessel formation. The gene is highly conserved in nature, having been found in birds and humans. Scientists studying cloche believe that, given the gene's role in development, the human version may represent an opportunity for new applications in personalized stem cell therapies.

Gaga (Field: Taxonomy)

In 2012, a genus of ferns have been named Gaga after the famous pop-star Lady Gaga. At one stage of its life, the new genus has somewhat fluid definitions of gender and bears a striking resemblance to one of Gaga's famous costumes that she wore during the 52nd Annual Grammy Awards. Furthermore, members of the new genus also bear a distinct DNA sequence spelling GAGA.

Pikachurin (Field: Neurobiology)

In 2008, a research group in Japan described a new extracellular matrix-like retinal protein that was thereafter referred to as Pikachurin. The protein



A striking resemblance: Lady Gaga's Armani Prive dress from her 2010 Grammy Awards performance (left) bears a striking resemblance to the fern “gametophyte”: image courtesy of Karl Leif Bates, Duke Today, and Duke University.

increases the transmission speed of visual information from the eye to the brain. In fact, this function inspired the name Pikachurin, which references Pikachu, a species of the Pokémon franchise known for his lightning-fast moves and shocking electric effects.

Quark (Field: Particle physics)

In particle physics, quarks are elementary particles of matter and constituents of hadrons (protons and neutrons being the most stable). They were named inadvertently after the German term for a kind of cream cheese by Murray Gell-Mann, who took the name from the line in James Joyce's *Finnegans Wake*:

**“Three quarks for Muster Mark!
Sure he has not got much of a bark
And sure any he has it's all beside the mark.”**

Gell-Mann recalls in his book *The Quark and the Jaguar: Adventures in the Simple and the Complex* actually having the pronunciation “kwork” for the particle before coming across James Joyce's work. He thought “quark” was fitting due to the way they are found in nature. Funny enough, the term “quark” can also mean “nonsense” or “rubbish” in German. The six types of

quarks, with equally amusing and non-scientific names, are up, down, charm, strange, top and bottom.

***Scaptia beyonceae* (Field: Taxonomy)**

The American recording artist and actress Beyoncé was an inspiration for naming a species of horsefly found in northeast Queensland, Australia. Interestingly, the horse fly has a dense patch of golden hairs forming a golden patch on its abdomen that reminded the scientists of the famous Queen B. Coincidentally, the fly was first collected in 1981, the same year the singer was born.

***Smaug and Glorund* (Field: Developmental biology / Organism: *Drosophila melanogaster* (fruit fly))**



Dwarf antagonist: *The dragon Smaug sits atop his treasure under the Lonely Mountain.*

A *Drosophila* (fruit fly) RNA-binding protein is named Smaug, after the treasure-loving dragon from JRR Tolkien's *The Hobbit*. In the early fly embryo, Smaug (the protein) prevents translation of an mRNA called *nanos* (the Greek word for "dwarf"), much like how Smaug the dragon tried to prevent Thorin and the Company of Dwarves from reclaiming the Lonely Mountain. Ten years later, another RNA-binding protein was identified, which prevents *nanos* translation in the ovaries (before Smaug's function in embryos). Continuing with the theme, this protein was named Glorund after the first dragon in Tolkien's lore.

***Sonic hedgehog* (Field: Developmental biology / Organism: *Homo sapiens humans*)**

The mammalian gene and corresponding protein Sonic hedgehog was named after the SEGA video game character. It's part of the so-called hedgehog family of signalling proteins which govern the organization and formation of the central nervous system and limbs in vertebrate embryos. The other genes/proteins in this family are Desert hedgehog and Indian hedgehog. The *Drosophila* version, named hedgehog, was the first one to be discovered. Whereas normal fly embryos have eight separate bands across their abdomen made

up of neatly organized spikes called "denticles", mutant embryos lacking the hedgehog gene are covered all over with these spikes.

Superman, Clark Kent and Kryptonite

(Field: Plant biology / Organism: *Arabidopsis thaliana* (thale cress))

This gene in the plant *Arabidopsis thaliana* is named after one of the most recognizable comic book superheroes, Superman. The *SUPERMAN* gene produces a protein that regulates flower development, and mutants lacking this gene develop extra stamens (the male fertilizing organ) and less pistils (the female fertilizing organ). The expression of this gene can be modified, leading to variations (epialleles) called *CLARK KENT*. And like Superman in the comics, expression of the *SUPERMAN* gene can be suppressed by the gene *KRYPTONITE*.

***Swiss Cheese* (Field: Neurobiology / Organism: *Drosophila melanogaster* (fruit fly))**

Swiss Cheese is a transmembrane protein in *Drosophila* whose loss leads to a degeneration of neurons and glial cells, as well as increased apoptotic cell death. The name is inspired by the characteristic holes in the brains of adult flies that lack this protein. It regulates the process of glial wrapping in adult brain development, such that mutants show hyperwrapping of glial cells and increased apoptosis of neuronal cells. The vertebrate version of Swiss Cheese, also required for glial integrity and neuronal survival, is called Neuropathy Target Esterase – a rather ordinary name compared to its *Drosophila* counterpart.

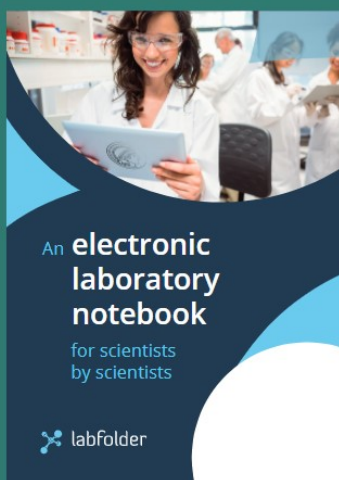
This list is by no means an exhaustive list, and perhaps we have missed some of your favourites! Whether you are studying a protein or object with a curious name, or have just come across it in the literature, we would love to hear from you. Send your favourite names in science to us at offspring@phdnet.de.

References of original scientific publications can be found in the online version.

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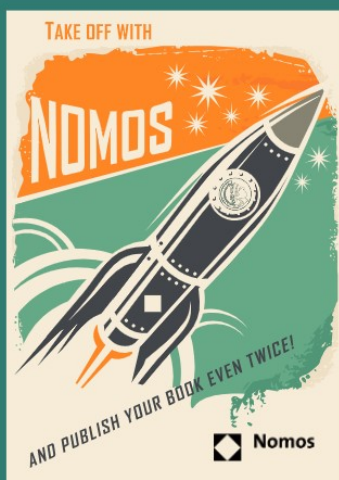
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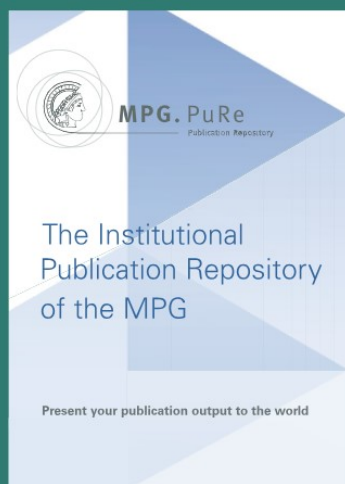


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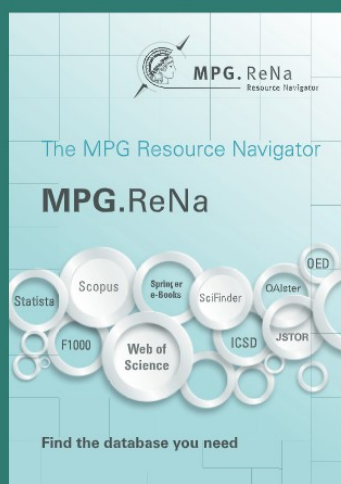


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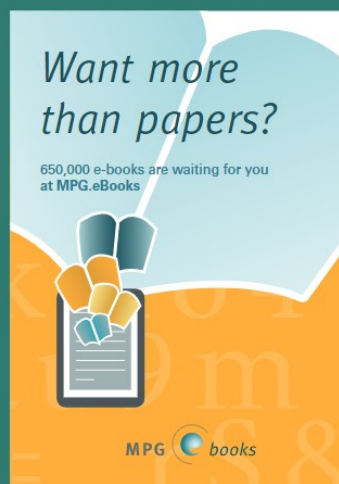
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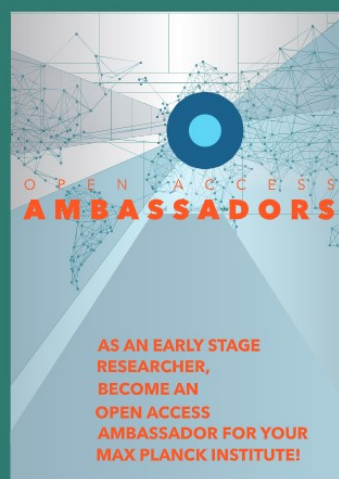
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Meet the Editorial Team



Maria Eichel is a doctoral researcher at the Max Planck Institute for experimental Medicine in Göttingen. Her studies focus on the communication between glial cells and axons within the peripheral nervous system. For Maria communication is the key so she joined the Offspring two years ago to contribute to a broader knowledge of career opportunities for young researchers and foster science communication. When she is not running around organizing things or writing articles (or PhDnet social media posts), Maria enjoys to read a good book with a hot cup of tea, loves to travel (always with the camera), meet friends for a beer and binge watch TV series.

Viswanadh Gowtham Arigela is a doctoral researcher at the Max Planck Institute for Eisenforschung GmbH in Düsseldorf and a scholarship holder of the International Max Planck Research School, SurMat. Viswanadh, originally from India, started his research in Germany in 2015 after completing his masters in IIT Roorkee, India. Currently for his thesis, Viswanadh is working on the development of a high temperature fracture device to characterize the mechanical properties of materials at very small scale length scales, typically in the order of nanometers to micrometers. Apart from his research, Viswanadh is also fond of hanging out with friends, visiting new places and weight training.



Constanze Depp studied 'Molecular Neuroscience' in Heidelberg where she developed her strong research interest in neurodegenerative diseases. Holding a Boehringer Ingelheim Fonds PhD fellowship, she joined the Lab of Prof. Klaus-Armin Nave at the Max Planck Institute for Experimental Medicine in Göttingen last year. In her doctoral thesis, she tries to understand if the dysfunctional coupling of oligodendrocytes (the myelin-producing cells in the central nervous system) and axons is a risk factor for Alzheimer's Disease. She recently joined the Offspring Team to further develop her skills in science communication and contribute to the vibrant outreach activities of the Max Planck PhDnet. In her free time, Constanze enjoys doing sports and going for a walk with the family dogs. She is also a passionate vegan who never gets tired advertising the multiple benefits of adopting a vegan lifestyle.

Renee Hartig is a fourth year doctoral researcher at the Max Planck Institute for Biological Cybernetics and Centre for Integrative Neuroscience in Tübingen. Hartig, originally from New York, moved to Germany in 2013 to complete a Master Degree in Neural & Behavioural Sciences at the Graduate Training Centre of Neuroscience at Tübingen University. She works in the Functional and Comparative Neuroanatomy Laboratory of Dr. Henry Evrard studying visceral and interoceptive sensory processing in primates. She spends her personal time wisely by traveling, blogging, teaching, and organizing events to promote public awareness of various neuroscience-related topics.



Raed Hmadi is a fourth year doctoral researcher at the Max Planck Institute for Immunobiology and Epigenetics in Freiburg. Raed obtained his Master degree in Molecular Biology at the American University of Beirut, Lebanon. Currently, he is studying the process of gene dosage compensation in model organisms, particularly X chromosome inactivation in female mammals, in the lab of Dr. Asifa Akhtar. Outside the lab, Raed is involved in sports, biking, and traveling.

Kristin Krause is a doctoral researcher at the Max Planck Institute for Plant Breeding Research in Cologne and is part of the International Max Planck Research School. She studied molecular biotechnology and plant biology in Heidelberg (DE) and Uppsala (SE), respectively. Lead by her strong interest in epigenetics, she is presently investigating how Polycomb group proteins are recruited to specific target loci where they play an integral role in the execution of transcriptional regulation. Apart from research, she enjoys travelling, never leaving her camera behind, creative work like painting, hanging out with friends, or just a good book.



Aida Ahmadi is currently a doctoral researcher at the Max Planck Institute for Astronomy in Heidelberg, entering the final year of her doctorate. She has a background in Astrophysics, having done her master's studies at the Max Planck Institute for Radio Astronomy in Bonn before moving to Heidelberg. She is interested in understanding the processes involved in the birth of the most massive stars in our galaxy. She has a strong presence at her institute by representing the student body to the administration, and organizing weekly departmental seminars, workshops for the students, and outreach events for the public. When not dreaming about the stars, she can be found travelling, hiking, knitting, and counting down the days until she can adopt a dog.

Mayank Chugh is a doctoral researcher at the Center for Plant Molecular Biology (ZMBP), University of Tübingen. Mayank joined his doctorate as an International Max Planck Research Fellow at the Max Planck Institute for Developmental Biology, Tübingen. Mayank is interested in developmental genetics and during his doctorate he is expanding this fondness to single-molecule biophysics to paint an interdisciplinary picture of developmental phenomena and processes, in particular, how plants accurately align their new cell walls during cytokinesis. He is vocal about interdisciplinary, fair, and open science as highlighted by his ASAPbio ambassadorship and his own initiative 'TogetherWeScience' based in Tuebingen. When not in lab, he is photographing, travelling, reading, partying, or cooking and baking in his kitchen.



Matthew HK Cheng was doctoral researcher at the Interfaculty Institute for Biochemistry at Universität Tübingen and the International Max Planck Research School. Driven by his love for RNA biology, he studied the potential for an RNA-binding protein to influence the aggregation and function of polyglutamine-containing proteins. He comes to Germany after completing his Master's thesis at the University of Toronto in Canada. He now joins the editorial team of the magazine "Science for School" based at the EMBL, where he will continue to promote science communication and education. Aside from science, Matthew is likely found exploring the visual arts, playing music, or on an ice-hockey rink.

Vinodh Ilangovan is a postdoctoral researcher at department of Genes and Behavior, Max Planck Institute for Biophysical Chemistry in Goettingen. He studies circadian clocks and sleep using an integrative approach by combining molecular genetics, neural circuits, animal behavior and evolutionary biology. He is an Open Science enthusiast and strongly advocates for the practice of responsible behaviors in scientific research. He enjoys experimenting with science communication through performing arts. Outside the laboratory, Vinodh becomes a stardust with consciousness queering and queying one piece per unit time.

