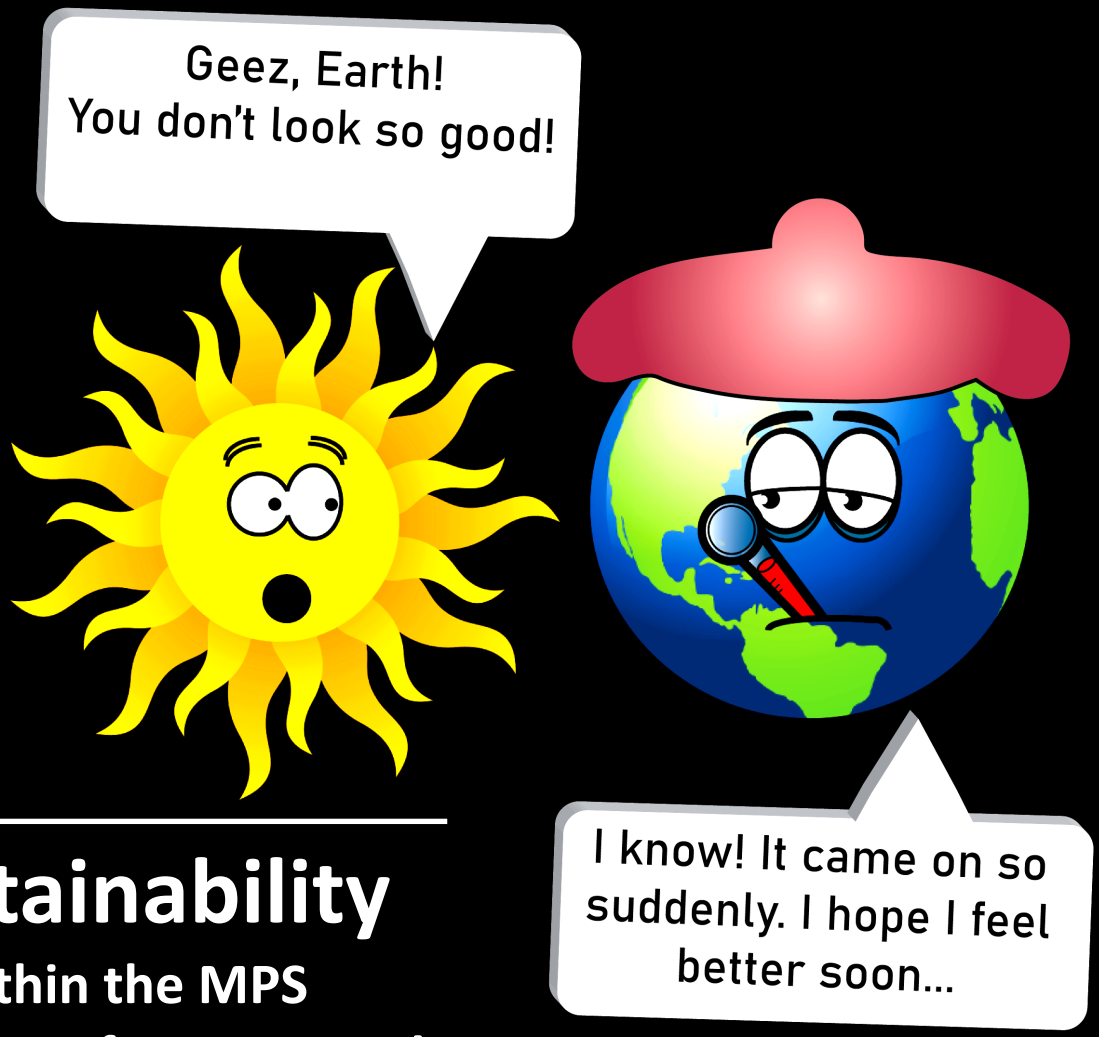
ISSUE 2019

# The Offspring MAGAZINE

A publication of the Max Planck PhDnet




## Sustainability
within the MPS
- It matters for everyone!

## Nature favours Nonsense

## Mental Health Awareness Week 2019

# Letter from the Editorial Team

In the scientific environment we live in as PhD students, there is a certain amount of collaboration and teamwork which is of utmost importance. We may manage to accomplish great things by ourselves but the people we are surrounded by, delivers the biggest impact on our work and daily lives. This year, we at the Offspring bring you a collection of interesting perspectives from multiple collaborative works, with a focus on science communication, sustainability and the environment.

In keeping with the tradition of Offspring Awareness Months Initiatives, in 2019 we declared August as our "Sustainability and Environmental" Awareness Month. We focussed on pressing issues with sustainability in the laboratory environment especially within the MPS. Read all about how one can realize the amount of environmental impact a day of laboratory work can have, and some rectifying measures to make our daily life more sustainable and eco friendly in "Sustainability within the MPS - It matters for everyone".In our daily lives outside of work, we impact different aspects of the environment with the various decisions we take. Changing something as small as our diet and the way we shop can go a long way in helping the earth for its future generations. To know more, check out the article "Your shopping list is a ballot paper and your lunch is your immediate opportunity for action". We also addressed nature conservation and biodiversity in the article "Closing the gaps in Europe's nature protection network".

Since all of us at Offspring are scientists, we believe science communication is one of the cornerstones of Offspring. We caught up with solar storm chaser and science communication enthusiast Miho Janvier in an Interview. Furthermore, we feature various events which took place to promote science communication such as the Munich Science Slam, a Pint of Science and the WireUP. You can read all about in our section covering Science Communication.

Blazing a path into the future which is just and equal is very important. To emphasize this we took a look at the challenges faced by workplaces to adapt to this diversification. In the article "Women in STEM - From counting the numbers to making the numbers count" we address gender inequality issues in Germany as a whole and what the MPS is doing with regard to this. We also had time to catch up with two women who won the Otto Hahn Medal, Claudia Gerri and Greta Reintjes who advice young researchers to "Be brave and try something out". Do also check our video interview with them on the PhDnet social media channels.

The 2018 PhDnet Survey brought to light some important aspects of PhD life, such as issues with power abuse and mental health among doctoral researchers. The survey report allowed us to draw some conclusions which have been highlighted in this issue of the Offspring. In dealing with one of the issues raised about Mental Health, the PhDnet organized the Mental Health Awareness Week during the second week of October 2019, which has also been discussed in this issue.

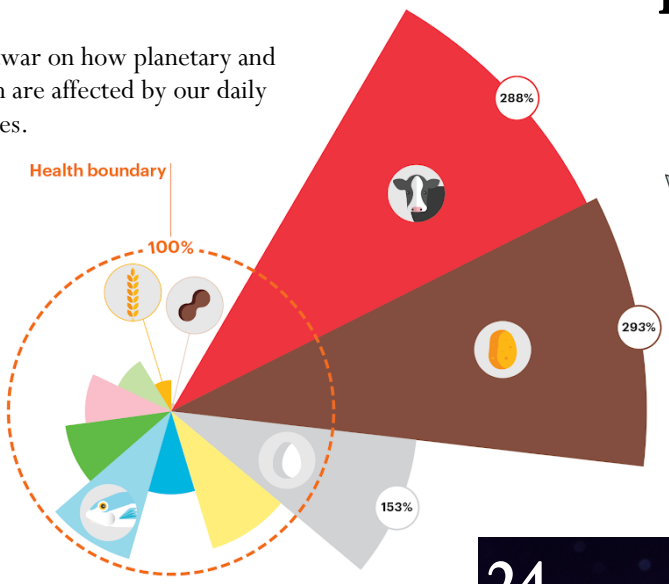
If you felt like you missed out on some Hardcore Science, don't worry, Offspring's got you covered. For our CPT folks, we have an article on how Corrosion works in "Corrosion: We rest the world rusts". For our BMS folks, we have a offer, where we discuss a recent article in Nature about how mutant mRNA degradation leads to genetic compensation in the digest "Nature favours Nonsense".

For us at Offspring, 2019 has been an eventful year to say the least. We hope you enjoy this edition of the magazine as much as we did putting it together throughout the year. We are forever grateful to the Max Planck PhDnet and everyone of you.′We are always looking for people with fresh ideas to join our team. Do write to us at offspring.magazine@phdnet.mpg.de, we would be glad to hear from you. Signing off in true Offspring fashion, we would like to point out that we practice what we preach, and hence this entire magazine has been printed on recycled paper. We request that you refrain from reprinting the magazine and stay eco-friendly, as all our articles and this years magazine are available online on https://www.phdnet.mpg.de/offspring-blog for you to read, share and enjoy.

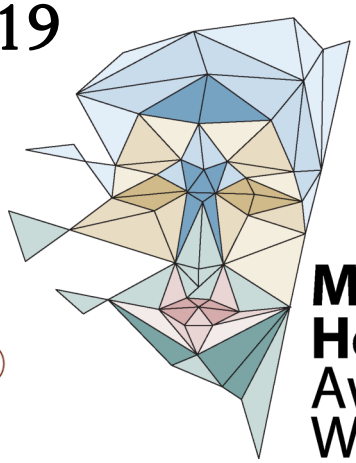
Sincerely
The Offspring Team

# In this Issue

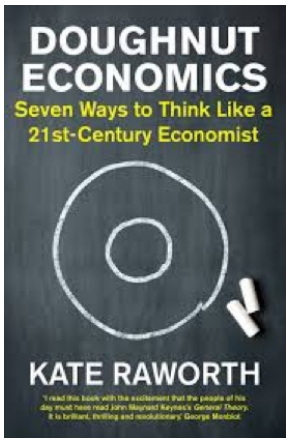






**Mental Health Awareness Week**






## Sustainability



## Mental Health



## Equal Opportunities



## Science Communication

# Closing the gaps in Europe's nature protection network

by ANKE MÜLLER

The Offspring declared August as "Sustainability & Environmental" Awareness Month. We are starting off with a contribution by Anke Müller, a doctoral researcher from the MPI for Meteorology, Hamburg. She is writing about why she focused her studies on nature conservation & biodiversity and about the evaluation of European Union`s nature protection network Natura 2000.

For her PhD project Anke investigates where additional protected areas should be placed within the European Union to safeguard biodiversity. Photo Credit: Beniamino Abis/ Philipp Hoß

When I woke up in the morning, the first thing I would see from my window was the North Sea, sometimes grey with rough waves, sometimes bluish green contrasting a blue sky, sometimes retracted, leaving behind the bare soil and hundreds of birds busily fishing and picking their breakfast. It was the summer after I finished high school and I spent several months as an intern of a nature protection association at the island of Langeneß. My days were filled with monitoring breeding birds, taking care of the cows that were part of a grazing intensity experiment and guiding school classes and tourists. I showed them the Wadden Sea, this unique intertidal ecosystem that is both land and sea, and the salt marshes with their spectacular winged inhabitants and beautiful, salt-tolerating flowers.

Ever since my stay there, I only experience a true feeling of belonging, of pure joy or happiness, when being out in nature, in landscapes and ecosystems which are not yet fully dominated and shaped by human interventions.

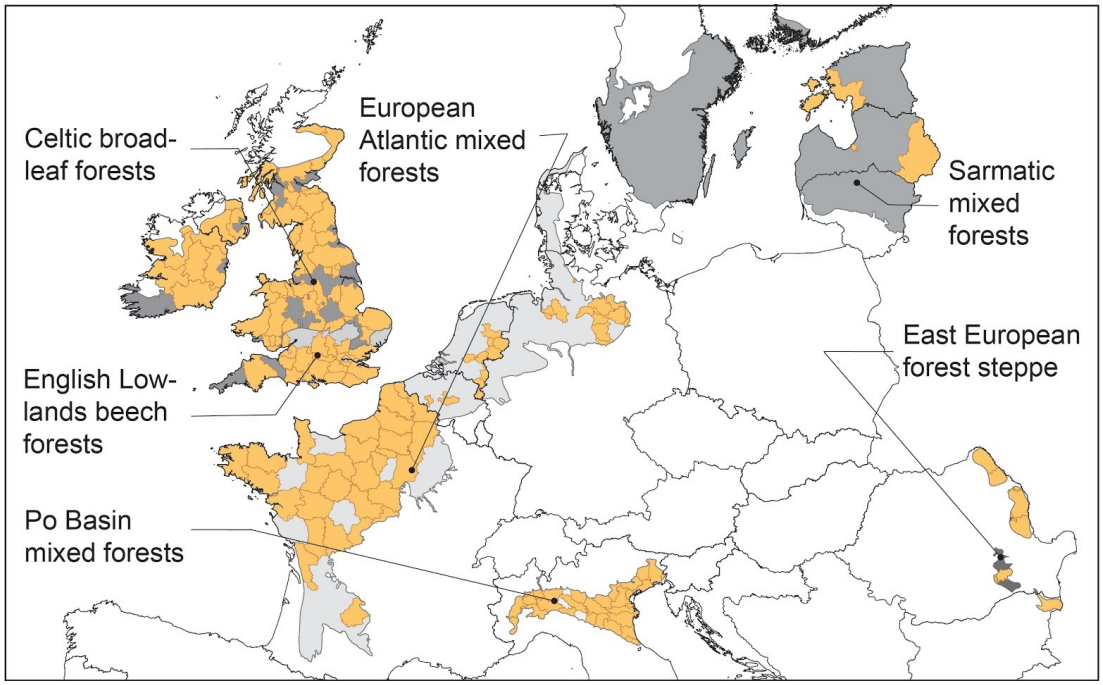
Not surprisingly, I decided to study landscape planning and nature conservation afterwards. Many times during the years of my study, I would have the pleasure of wandering through natural or traditionally farmed landscapes and observing the diverse plant and animal species that have adapted to each of these specific environments. However, I also learnt about all the threats that human overconsumption and excessive resource use put on this magnificent web of life, or biodiversity, as we call the diversity of all existing life forms from genes to plant and animal species to ecosystems. Having entered the Anthropocene, humanity has become the dominant force in shaping the biosphere and we have converted large parts of natural habitats into production lands inhospitable to the spe-

cies that used to live there. We have hunted many animal species beyond sustainable limits, have poisoned them with pesticides, polluted their habitats with oil, heavy metals or plastics and lately, we are changing climatic conditions at a pace that animal and plant life cannot keep up with. There seems to be no limit to the cruelty humanity is willing to commit against the fellow species that have co-inhabited this planet for millennia. In the name of progress and for the sake of economic growth we accept ever accelerating levels of nature destruction.

Realizing the damage done and the alarming rate with which species were and still are driven towards extinction, more than a hundred nations pledged to stop biodiversity loss by signing the Convention on Biological Diversity (CBD) back in 1992. Since then, further reports such as the Millennium Ecosystem Assessment (2005) have visualized the crucial link between human well-being and the functioning of healthy ecosystems. However, as the first global assessment of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES, 2019) has recently shown, process towards solving the biodiversity crisis has been limited and the problem has rather become more severe over the last few decades, with a staggering one million species currently on the brink of extinction. Witnessing how we as global, national and local societies fail to safeguard the very foundations our cultural, economic and societal systems are built upon, I aimed for a PhD topic that would investigate how we could improve biodiversity protection in the future. This is what I now work on, as part of the research area 'human dimensions' at the International Max Planck Research School on Earth System Modelling in Hamburg.

One important action to mitigate the loss of biodiversity is the establishment of nature protection networks. In these connected protected nature reserves, it is possible to ban most direct drivers of species extinction, such as habitat destruction or overexploitation. This is why the CBD's current strategic plan on biodiversity, which consists of 20 so-called Aichi targets, is calling for the formal protection of 17% of the terrestrial area of the planet (one objective of Aichi target 11). Since this strategy was adopted in 2010, there has been quite some progress towards this target in different parts of the world. Still, species keep drifting towards extinction despite the growing number of protected areas. We can understand this seeming paradox if we look at the different factors that determine the effectiveness of protected area networks. To safeguard biodiversity, it is not sufficient to just put a certain area under legal protection. Instead, a strategic placement and adequate management of protected areas is necessary to ensure that all components of biodiversity will be able to thrive in the future.

For my PhD project, I decided to evaluate the European Union's nature protection network Natura 2000. The Natura 2000 network is one of the world's largest nature protection networks under a single regulatory framework. It already covers more than 18% of the EU's land area, surpassing the 17% target the CBD has called for. Therefore, the member states currently consider the designation process of protected areas in the terrestrial part of the network as complete. Nevertheless, biodiversity loss on the European continent is still ongoing, with more than 22% of the 11,260 European plant and animal species assessed to date by the IUCN Red List classified as threatened. There are many reasons for this ongoing loss of biodiversity despite the efforts already made, but for my research, I focus on the question whether the European Union's protection network is covering biodiversity adequately.




Map of the Natura 2000 network: Counties depicted in yellow show where the Natura 2000 network could be expanded most cost-efficiently to close the protection coverage gaps of six ecoregions (depicted in grey shades). Photo Credit: Nature 2000 network

Previous work on the evaluation of Natura 2000 has mainly focused on the coverage of certain vertebrate species groups such as amphibians, mammals or birds. The problem with evaluation on species level is that there are so many of them: It is not possible to monitor them all in sufficient detail, which causes huge data gaps. Instead of resorting to the evaluation of just another sub-sample of species for which data are available, I decided to look at coarser classifications of biodiversity that can be monitored much easier, namely habitat types and ecoregions. In the EU, there are more than 230 habitat types for which Natura 2000 sites should be designated, i.e. Luzulo-Fagetum beech forests, Mountain hay meadows or Sea dunes of the Mediterranean coast. Ecoregions, on the other hand, are a set of relatively broad, but ecologically distinct regions of which we have about forty in the European Union. Some of them cover only a part of a member state's area, such as the Po Basin mixed forests, which is located in Northern Italy. Others, such as European Atlantic mixed forests have a much larger extent, ranging from the Danish west coast down to the Pyrenees. Despite their names, ecoregions in the EU do not only consist of forest habitat types but within one ecoregion a mosaic of different habitat types can be found. Each of these habitat types in each of the ecoregions harbors unique plant and animal communities. However, how much of each ecoregion does the protection network actually need to protect in order to "adequately" cover biodiversity in that ecoregion?

This question is also dealt with by the technical rationale document to Aichi target 11. According to this guideline, a protection reserve network needs to cover 10% of each ecoregion to be considered "ecologically representative", which is another objective of Aichi target 11. I evaluated the Natura 2000 network against this coverage target to monitor the EU's progress towards this specific objective of Aichi target 11. In my analysis, however, I found that the Natura 2000 network, even though it is one of the largest nature protection networks worldwide, still does not fully cover six of the about forty ecoregions (Figure 2, see map below). Even though the EU has formally declared the designation process of Natura 2000 sites to be finished, my results suggest that additional nature reserves should be added to the protection network in those six gap ecoregions in order to fulfill Aichi target 11 of the CBD.

But where should such additional nature reserves be best placed? Most suitable candidate sites would not only close the coverage gap of an ecoregion. To increase coverage of diverse biodiversity components in the network even further candidate sites should be selected for those habitat types within an ecoregion that are currently least protected by existing reserves. Additionally, conservation always has to deal with scarce monetary resources, so it is important to identify the cheapest regions, i.e. regions with lowest land costs, where conservation objectives can be fulfilled.

**Want to know more?**

@SimplyAnke

To simulate such a systematic and cost-efficient expansion of the Natura 2000 network, I developed and programmed an optimization computer model. With this model, I determine the cheapest set of European regions where additional conservation area could be allocated to cover 10% of each ecoregion and at the same time increase the protection of habitat types that are not yet well covered by the existing protection network. My results show that eleven member states would need to expand their national Natura 2000 networks to close the six gapped ecoregions' protection shortcomings (Figure 2). This would translate into adding in total roughly 15,000 km² or 0.35% of the EU's land area to the nature reserve network (Müller, Schneider, & Jantke, 2018). For example, to fully cover the ecoregion European Atlantic mixed forests, some additional Natura 2000 sites should also be designated in North German counties around Hamburg. Here, especially peatland forests could be targeted habitat types for future protected area designations.

For biodiversity protection, 2020 will be a year of great importance, because the CBD's current strategic plan on biodiversity will expire by then. Nations have to come up with a new biodiversity protection plan at the 15th Conference of the parties (COP 15) of the CBD, which will take place in October 2020 in Beijing, China. Similar to the Paris Agreement for Climate Change, progress towards solving the biodiversity crisis will largely depend on the level of ambition signatory parties agree upon. The framework they decide on will determine whether we will be able to reverse the current trend of biodiversity decline. Will we safeguard these one million species currently most threatened or will we lose them forever? Scientific contributions such as my PhD thesis are important to track progress towards the targets of current biodiversity strategies and highlight where future actions should be directed at. The scientific community already provides a very detailed description of the problem and has described in many cases the solutions to tackle it. However, it is now upon us as societies to decide if we seriously want to keep the web of life on this planet functioning and thus demand of policy makers to go ahead and implement these solutions.

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# Take home message: "Your shopping list is a ballot paper and your lunch is your immediate opportunity for action"

## How planetary and human health are affected by our daily dietary choices

by EVELYN MEDAWAR

Photo Credit: Pixnio

### The concept of "planetary health diet"

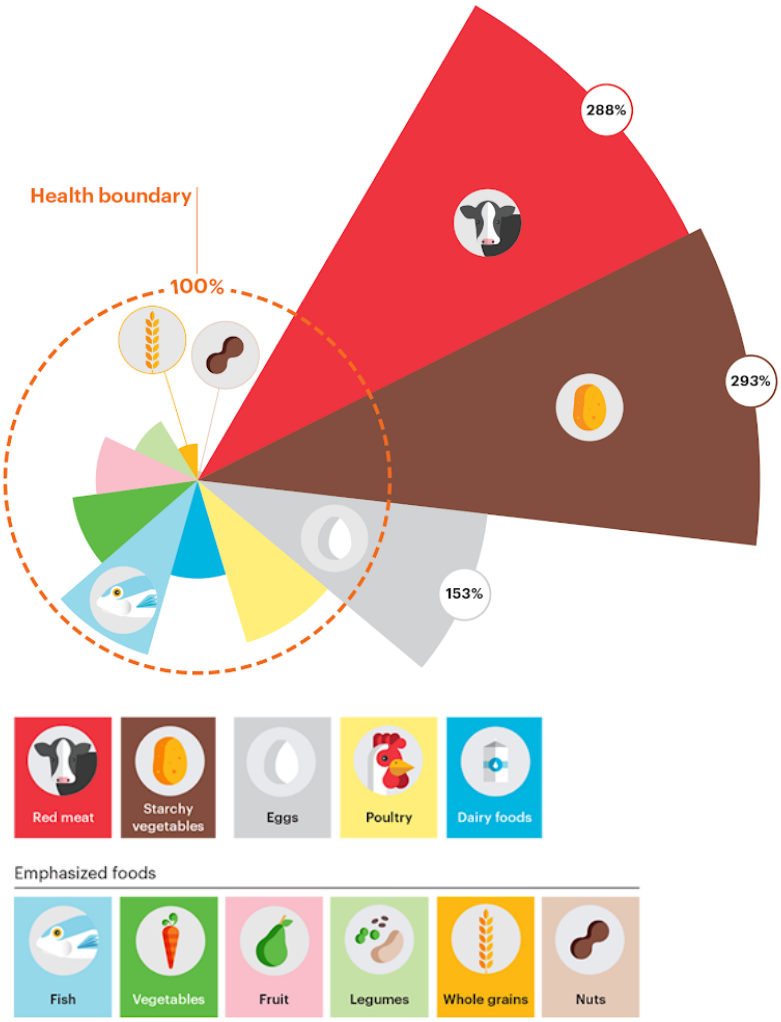
Public and scientific interest for plant-based eating patterns has been consistently increasing over the last 20 years, in particular for vegetarian and vegan diets, which partly or completely avoid animal-based products. Today, estimates propose that 5-10% of Germans are vegetarian or vegan[1,2]. Reasons for changing one's diet can be multi-fold, including animal welfare, health, climate and religion among others.

The term "planetary health diet" was coined by the EAT-Lancet Commission with the aim to define guidelines for sustainable diets meeting both human health requirements and environmental sustainability[3]. As a proof of concept, it has been shown that following the suggested 14 guidelines for a sustainable diet (e.g. doubling the intake of fruit, vegetables, legumes and nuts and reducing the intake of meat and sugar by 50%), is linked to lower risk for ischaemic heart disease and diabetes in the cross-sectional data of the EPIC-Oxford study[4].

"But what's the link to climate – do plant-based food items really emit less $CO_2$?"

Supply chains in the animal industry make up to 14.5% of global anthropogenic greenhouse gas emissions[5], 22% of the global groundwater footprint[6] and 38% of global land use (FAO, 2003). Completely or partly avoiding animal-based products can have substantial positive effects of human behaviour on climate: 50-80% of diet-related anthropogenic greenhouse gas emissions and land use demands[7,8], about 50%

# Current Diets vs Planetary Health Diet




Displaying which food groups are overconsumed in current Western-style diets (pie chart) and which are the proposed guidelines from the EAT-Lancet commission for meeting a planetary health diet.
Photo Credit: Stockholm Resilience Centre (https://www.stockholmresilience.org/research/research-news/2019-01-17-the-planetary-health-diet.html)

of individual diet-related water consumption[8], between 14-21% of global water use[9] and a significant reduction of the global nitrogen footprint[10] could be avoided by adopting a plant -based diet. The ecological benefits of plant-based diets become apparent when comparing the resources needed for 1kg of beef compared to 1kg of a non-animal-based alternative: land use is 10-fold, greenhouse gas emissions 30-fold and nitrogen use is 17-fold higher for producing beef[11].

"Ok, and practically, what does that mean for my individual $CO_2$ footprint and aren't there actions with higher climate impact?"

Plant-based eating can save up to 1t $CO_2$/year compared to an omnivorous Western diet, fourth in line for high impact actions that can decrease one's personal $CO_2$ footprint behind having one fewer child (60t $CO_2$/year), living car-free (2.4t $CO_2$/year) and avoiding one round-trip transatlantic flight (1.6t $CO_2$/year)[12].

**Inspired to pursue my PhD on the topic of plant-based diets**

I am in the second year of my PhD with the aim to assess whether plant-based diets, i.e. a high-fiber diet, influence our decisions of what we would like to eat. We postulate that potential effects are mediated by the gut microbiome. In a literature review, I summarized benefits and risks of following a plant-based diet for the body and in particular for the brain (Medawar et al. 2019, in press). Further, in a large cross-sectional study of the Leipzig population[10] I am investigating the interplay between plant-based eating patterns, weight status measured as body-mass-index, emotional health and personality traits. Two observational studies placed in the German student cafeterias (Mensen des Deutschen Studentenwerks) are currently running with the aim to investigate the effect of a single meal choice on well-being and satiety. We want to find out what effect the nutrition value of the meal has, and which other variables may play a role for mood after a meal, e.g. social contact, smartphone use etc.

To investigate neural patterns of food choices, we examine whether a 2-week high-fiber dietary intervention affects food wanting and memory performance. Participants come four times to our institute with brain scans (magnetic resonance imaging = MRI), extensive lab examination, stool samples, food diaries and cognitive testing. We want to find out whether our gut bacteria do have a say in what we choose to eat.

**Do you want to participate?**
Download the App Mensa

For further questions contact
Evelyn Medawar
mensa@cbs.mpg.de

**Feeling motivated? Next steps:**

- choose the **meat-free** option for lunch
- eat **locally** (choose ingredients from your local region or from Germany)
- **reduce waste**: avoid plastic wrappings (bring your own mug, take your Tupperware to transport leftovers)
- get in touch with your institute's **Sustainability Group** or if there is none yet, get a group of motivated people and create one
- find info on how to **eat greener within MPI canteens**

Evelyn Medawar is a doctoral researcher from the MPI for Human Cognitive and Brain Sciences, Leipzig. She is writing about the concept of a "planetary health diet" and her doctoral project in which she assesses wether plant based diets influence our decisions of what we would like to eat.

**Want to know more?**

@EvelynMedawar

@AgingObesity

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# Sustainability within the MPS - It matters for everyone!

by SWATI SUBRAMANIAN and MARIA EICHEL

„They were standing there not realizing what they were doing to the ground they were standing on, the soil which gave them food, not noticing how it changed and also not listening to a woman telling them to open their eyes."

About three months ago I sat down for coffee with my grandma, the daughter of a farmer from a small village in Saxony. We talked about a lot of things and how it often occurs nowadays, with friends or family, the topic came to climate change. Coming from a rather small village, I know how good "real" cucumbers, tomatoes or potatoes can taste and how rarely you get these nowadays. We talked about energy consumption, change in weather, the new digital world (being a totally different topic) but also about food, nutrition and farming. My grandma still remembers the days when there was a sudden switch from "traditional" farming towards using a variety of fertilizers to increase crop yield. The type of fertilizers would always change over the seasons depending on the crops and my grandma recalled how the soil switched from looking healthy to being dry, changing color and producing food that tasted nothing like before. She talked about how she would have asked the men why they were doing such, if they didn't realize what it did to the ground they were standing on. She talked about how no one was really interested in what she said, because the crops had to be higher, there were more people to feed and the state was ordering how much food they should produce (it was back in the former "DDR" times). The words she used to describe this scene deeply moved my mind. I could feel all her emotions and the trust she lost in the generations after her – she thought we would be changing things for the better. And shouldn't we? Why are we making things worse? Are we really aware of what we are doing? None of us can change the world alone, but in this moment, I at least decided to be aware! And to increase awareness! Taking baby steps is at least a way forward – I am aware that more can be done and I am not getting a clearer conscious but… well, one has to start somewhere, right? I have decided not only to question my private life but also my workplace and gladly noticed – other people do too! That's the first piece of good news!

Working in the lab for five to seven days a week, we produce a massive amount of waste (see the first picture – the work of a colleague after half a day of experiments), we use up a lot of energy with all the devices, we often eat unhealthy, fast food and with travelling for work alone we don't even want to think about our $CO_2$ footprint. Being aware and informing yourself of what can be changed is a great start – educating others is the next step and you are already on the right path by trying to implement changes. To make it easier for everyone, we decided to find out what kind of steps the Max Planck Society (MPS) and its people are doing and trust us, there are already some things going on. That's the second piece of good news!

Rubbish after a half-a-day of work in the lab. Photo Credit: Maria Eichel

From the 16th to the 17th of May 2019 the sustainability working group of the MPI for dynamics of complex technical systems, Magdeburg, hosted the first sustainability workshop in the Max Planck Society. People from other institutes who founded a sustainability group as well as many interested employees met each others to investigate and discuss how we can make our working environment more "green". Hence, we decided to meet and talk to people who attended this workshop to find out more about how to take steps forward.

The two day long workshop commenced with a statement regarding sustainability in the MPS by Dr. Christoph Kolbe, the MPS representative for Environmental and Safety. This was followed by a brief introduction to the sustainability working groups across the MPS and several presentations that addressed topics such as, Climate protection and climate research, Offset flight carbon footprints in research institutions and The biodiversity initiative of the Joint Works Council of the MPG. The participants were then divided into teams to brainstorm and prepare short presentations on suggestions or solutions that institutes could implement to combat issues such as carbon emissions as a result of mobility, waste reduction and management, conservation of local biodiversity, etc. In this way, the participants were not only able to share what was already being done in their institutes but also get fresh ideas for the future. For some, the concept of sustainability was new and while they had enthusiasm, they lacked the proper information and resources to practice it. The workshop provided a perfect amalgam of people who want to teach and who want to learn how to lead a more sustainable, environmentally friendly lifestyle. Some of the ideas brought forth will not only be beneficial for the work environment but also for home!

We asked some of the participants and the organisers of the workshop for their feedback on what they expected to gain from this workshop and what they achieved in the end. Dr. Anke Schräpler from the MPI for Experimental Medicine in Göttingen, a participant of the workshop, provided us with some of her personal insights and what were the highlights of the workshop for her.

'For me, there wasn't just one highlight during the workshop but several. The atmosphere was very positive and energetic. Everybody was eager to contribute - either by sharing processes already done in the institutes, or by brainstorming ideas. We all know that there are and will be limitations to what we can change but the overall attitude was like 'Yes, we can' - at least to me. The organization of the workshop was awesome. And in this context I have to mention the mouth-watering vegan dinner! Originally, I participated in the workshop because I have had some ideas on how to run the animal facility a little bit more sustainably and I had hoped to get some more input regarding that topic, which I did. I had an interesting conversation on volatile agents: they damage the atmosphere more than $CO_2$ and unfortunately, in the future they will be used by farmers when neutering the male piglets. Which is of course better than neutering without any anesthesia… But there are alternatives to neutering about 40 million male piglets each year (just Germany) - e.g. the immunisation against the smell of the

Group photo of the Sustainability Workshop 2019. Photo Credit: MPG Sustainability Network.

boar (two shots per animal), or maybe people just have to accept that odor when eating meat from swine.'

Evelyn Medawar, a doctoral researcher at the MPI for Human Cognitive and Brain Sciences in Leipzig, is a member of the recently founded Sustainability Network. We asked her a couple of questions regarding her experience. Here is what she had to say:

**What did you find inspiring?**
"The number of engaged and interested people from all parts of the MPG was amazingly stunning! We all felt a great momentum for the cause of engaging for sustainability within the MPG."

**What seems like the best initiative?**
"The best initiative was to create a new network for sustainability within the MPG to bring the matter to a greater cause and to an official level, like other research institutions already do. For example, we want to tackle the topics of travel guidelines and energy supply within the MPG."

**What will you change regarding your own workstyle?**
"Within our institute's Green Team we are already quite actively engaged in the process. However, we learned from the workshop, how to streamline ideas, how to foster discussions efficiently and how to build workforces who then further develop specific ideas and their implementation."

**What was your highlight?**
"Witnessing sustainable conferencing live: one guest talk was held via video call - the talk and the following discussions were great; this proof-of-concept showed 2 things: 1) video calls are effective in doing science and in reducing travel emissions and 2) somethings it's good TO DO things and not to talk about them.

Another participant, David Walter, from the MPI for Biogeochemistry in Jena remembers the sheer amount of interest reflected in the number of participants, the efforts of the existing sustainability groups and the overall encouraging atmosphere of the workshop. He also said that the most remarkable thing he learned from the workshop was regarding the local biodiversity and how some institutes are trying to support it within their campuses. Also, the apparent legal challenges we face in travelling clean via initiatives such as atmosfair. He was struck, the most, by the video conference-mediated talk on ecosystem for birds by Dr. Wolfgang Fiedler and the conversion of natural resources into viable fuel options by Prof. Dr. Kai Sundmacher.

Tackling the topic of sustainability can be an overwhelming journey for most. The practice of being mindful of the waste you produce in a day and consciously trying to reduce it takes time and care. It may happen that, at first, implementing all these practices in one go can be more detrimental to the environment, not to mention expensive. But as you manage to maintain one or two of these practices initially, you get more and more confident and can adopt practices as you go further.

If you want to take it a step further but you're unsure of where to begin this journey, take a look at the tables below to get some ideas of what is being done all across the MPS and how you can engage in the topic of sustainability.

**First steps towards sustainability in the lab and at home:**

- Switch off electrical devices or computers before leaving
- Be conscious about the waste you produce. Can you maybe reuse some equipment? Can you maybe switch from plastic to glass beakers in some cases (or from PET to glass bottles at home) or from plastic spatulas to metal ones?
- If it is feasible to not have your bin emptied everyday if it is only half full or collect waste organized (in 1-2 bins instead of many single bins)
- Separate waste (aluminium foil, plastic from packaging and paper waste are easily separable)
- Check for microplastic free soaps
- Bring your food and beverages in reusable and transportable containers
- Use digital material for reading papers instead of printing

## Networking Sustainability

| What to do? | How? Best practice! |
|---|---|
| Join or create an SG in your institute | Find some help for how to do it here: https://extranet.mpg.de/teams/Sustainability/ |
| Join Sustainability Net mailing list | https://listserv.gwdg.de/mailman/listinfo/sustainability sustainability@lists.mpg.de |
| Create awareness amongst colleagues | Institutes magazine, coffee breaks, discussion rounds, organize an event, MPG-wide events such as Awareness weeks or Scientist4future https://www.scientists4future.org/ |
| Contribute to Sustainability Network discussion and catalogue of measures | via MAX https://extranet.mpg.de/teams/Sustainability/ |
| Follow this year`s MPAA symposia | https://www.mpg.de/symposium2019 |

## Waste & Recycling

| What to do? | How? Best practice! |
|---|---|
| Ordering at vendors where you can send packaging back | Ask your local Einkauf |
| Replace everyday articles by more sustainable ones | Ask your local Einkauf for sustainable options (recycled paper, hygiene products, recyclable rubbish bags...) |
| Separate rubbish and have according bags or make collection areas instead of single rubbish bins in every office | Start changing things in your lab and take it from there Best practice: MPI for Chemistry |
| Check if soaps in the lab and on toilet (and at home) are microplastic free | Create posters informing about it at common places (eg toilet) and do some research about used products https://www.beatthemicrobead.org/zero-products/ Best practice: MPI CBS Leipzig |
| Have a food sharing fridge at the institute | Talk to your local administration or Sustainability Group (SG) if it could be installed Best practice: MPI Magdeburg |
| Recycle old posters for kindergarten | Ask local kindergarten and your GA Best practice: MPI Magdeburg? |
| Recycle old furniture from the institute to local communities or for hobby rooms | Ask around locally who needs furniture |
| inform new people during safety instruction about recycling rules | Talk to your safety officer to include these information |

## Energy Saving

| What to do? | How? Best practice! |
|---|---|
| Reduce autoclave cycles (e.g. in animal facilities) and change freezer configuration (e.g. -78°C instead of -80°C) | Talk to responsible persons what is possible<br>Best practice existent? |
| Intelligent lighting management, water cooling or heating management | |
| Change to Eco-Energy/Ökostrom | e.g. Naturstrom, Greenpeace Energy, Lichtblick |

## Biodiversity

| What to do? | How? Best practice! |
|---|---|
| Check which species are endangered in your region to tackle specific problem<br>- How can they be protected?<br>- What is really needed? | Check at local animal protection groups (e.g. Bird Protection Nabu https://www.nabu.de/) |
| Build Insect hotels/bee hotels or bird nesting boxes if necessary | Ask your local administration or SG and workshop |
| Plant flowers on green areas or have gardening projects, have wild meadows and reduce mowing | Ask your local administration or SG make it a social project e.g. apprentices project |
| Fair trade coffee & more vegetarian food for events in the institute | more ideas gathered here |

## Mobility

| What to do? | How? Best practice! |
|---|---|
| Train instead of airplane | Ongoing discussions with MPS GA if this can be funded more<br>Best practice: MPI Hamburg, MPI Chemistry are in ongoing discussion; Forschungszentrum Jülich or Alexander von Humboldt Stiftung |
| Compensate for $CO_2$ | https://co2.myclimate.org/en/flight_calculators/new<br>https://www.atmosfair.de/en/<br>always check for Gold standard sign<br>Basic support by MPS is currently discussed |
| E-bikes for short trips from the institute, institute bikes or bike sharing, proper roofed bike parking spots | Check with your local GA, SG and directors if possible<br>Best practice: MPI-BPC Göttingen, MPI Magdeburg |
| Increase the amount and technical support for video conferences | Best practice: MPI Magdeburg |

Examples of a foodsharing fridge at the MPI Magdeburg (left) and of stickers to raise awareness from the MPI CBS Leipzig (right).


Photo Credit: MPI CBS Green Team

Video conferencing with Dr. Wolfgang Fiedler (MPI Radolfzell) enabled with the support of the Deutsches Forschungsnetz with full IT support at the MPG Sustainability Workshop 2019 in Magdeburg.

Photo Credit: MPG Sustainability Network

Book review

# Doughnut Economics:

# Seven Ways to Think Like a 21st-Century Economist

by ALEXANDER FILIPPI and JAKE WILSON

"You never change things by fighting the existing reality. To change something, build a new model that makes the existing model obsolete."
- Kate Raworth

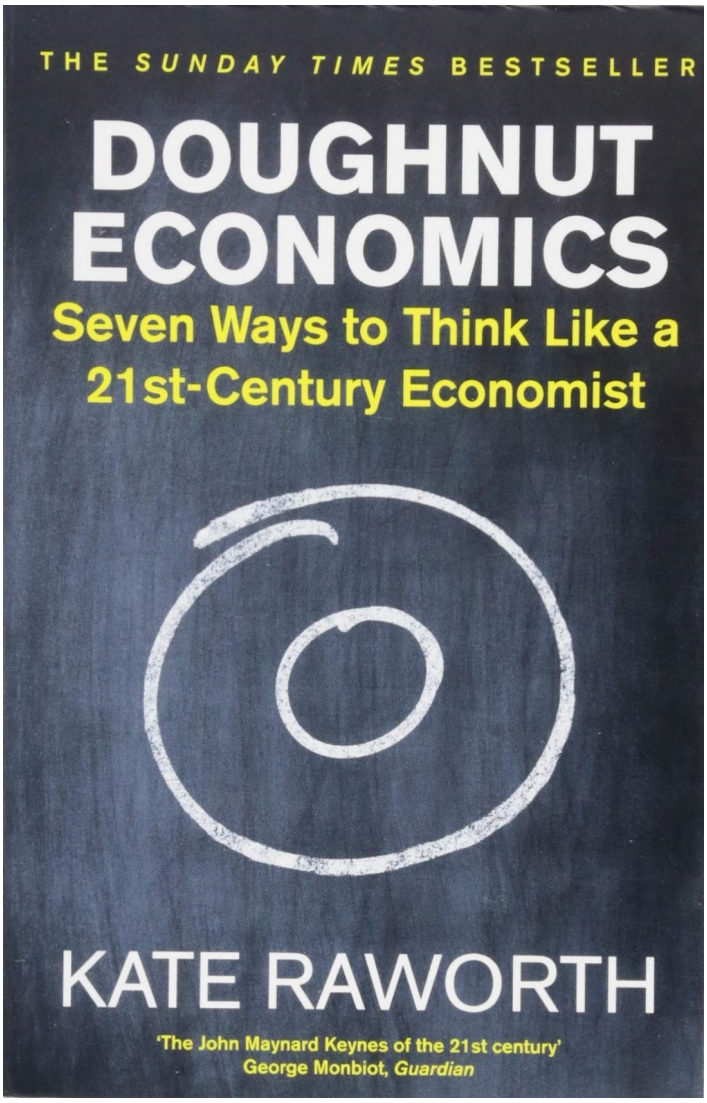
Doughnut Economics is a book that challenges the economic conventions we accept as dogma. It questions whether GDP (Gross Domestic Product) should be the cornerstone on which political and economical aims are built, and asks us to consider if everlasting continuous growth is possible. The central idea of this book arrives in the form of a doughnut. This simple shape conveys the compromise and balance needed between the requirements of our societies and the capacity of our environment. Using this and six other images, Raworth takes non-experts beyond the mindset of a neoliberal economist and introduces new ways of thinking forward. The strength of this book is in the illustrations. The author integrates and presents these ideas in a way that can be understood by everyone.

One particular sentence in this book resonates: "Economics (…) is not a matter of discovering laws: it is essentially a question of design". We have a responsibility to design, calibrate and optimize an economic system which works for everyone, while avoiding the environmental problems that now scar our planet. As scientists, we learn not to accept things the way they are, but to question where they came from. We have the skills to design, to optimize and to calibrate. We have a responsibility to be a part of this change. The author captures this sentiment in the final chapter, 'We are all economists now', before outlining a vision of how we can all play a part in redesigning our economic model to a more circular and sustainable system.

Kate Raworth gives us hope through this book, hope that there are alternative solutions to the problems we are facing with our current economic model. For example, alongside GDP, to use metrics that encompass inequality, human welfare and sustainability. Her integrated approach helps to understand the challenges we are facing and to identify small tasks that everyone can incorporate into their life and work. If you are interested in thinking more broadly about sustainability, economics and the future of our societies, we highly recommend this book.

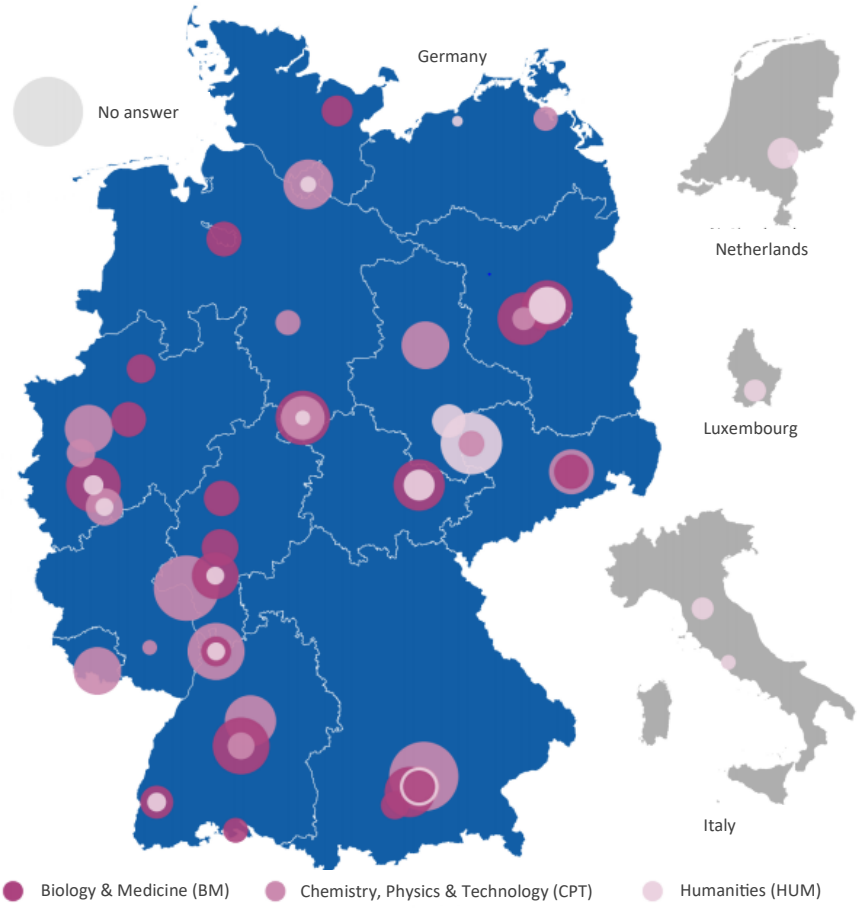
**Want to know more?**

@KateRaworth
#Sustainability



# The 2018 PhDnet Survey: Drawing conclusions

by LAURA EINHORN




Distribution of responses from Max Planck doctoral researchers in Germany, Netherlands, Luxembourg, and Italy color coded by section. Larger circles indicate more responses. Photo Credit: PhDnet Survey Group

The Max Planck Society (MPS) is one of the non-university research organizations in Germany that produces high-quality research in a plethora of interesting fields such as Maritime Biology, Quantum Physics, Linguistics and Political Sciences. The 85 Max Planck institutes (MPIs) across Germany and beyond provide doctoral researchers (DRs) with the opportunity to work on unique projects in a highly international research environment. However, while we are all certainly aware that this is a great privilege, many of us also face difficult working conditions, a stressful work atmosphere, and a high degree of pressure and anxiety (https://doi.org/10.1038/d41586-018-05634-8). Taking on and pursuing a PhD takes a high level of intrinsic motivation and commitment, an equally high level of resilience, and the ability to cope with a variety of problems: from being able to live off one's funding scheme, planning a limited number of holidays accordingly to managing the challenges of a hierarchical structure of supervision, and finding the right balance between work and leisure (https://doi.org/10.1038/s41562-019-0728-x). No matter which discipline, DRs can only flourish and contribute to the high-quality research the MPS thrives on when they don't have to jeopardize their passion and motivation for research, their mental and physical well-being or their friendship and family life for the sake of producing sufficient amounts of scientific output and meeting the demands of supervisors, colleagues, and of the academic field as a whole.

Changes are most efficacious if they are based on comprehensive insights into the most severe problems and into their origins. A first crucial step towards avoiding the negative repercussions of compromising and towards improving the working conditions for DRs is thus an assessment of DRs' situation

across MPIs. Identifying similarities and differences between institutes facilitates an understanding of problems endemic to single institutes and of problems which may be endemic to the MPS or to the academic profession as a whole. For this reason, PhDnet conducts an annual survey among DRs working at the MPS. The PhDnet aims to improve and adapt the survey each year. Starting this year, the core questionnaire will be synchronized among the Max Planck, Leibniz and Helmholtz Associations to include an even larger number of DRs in subsequent years. This will create greater leverage in negotiations with the Max Planck, Leibniz and Helmholtz headquarters, and it will help adopt solutions that other research institutions have already implemented.

Last year, the survey focused on DRs' working conditions, their supervision situation, good scientific practice (GSP), family planning and DRs' satisfaction with different aspects of their PhD (https://doi.org/10.17617/2.3052826). More than 50% of all DRs working at the MPS completed the survey.
A clear improvement compared to previous years is the increased share of contract versus stipend holders in most MPIs. The MPS also reacted to the low number of holidays in some institutes which made it especially daring for DRs from abroad to plan their trips back home. The increase of holidays from 20 to 30 days across institutes is gratefully acknowledged and may have taken much more time in absence of DRs' unambiguous demands articulated in the PhDnet surveys. However, the salary differences across sections, contributing to an untenable gender pay gap, and the differences in working conditions between German and non-German DRs, between different regions of Germany, research groups and clusters, or between cohorts are still worrisome. While these differences may in some cases be justifiable, they need to be communicated with utmost transparency. At times, the logic of the academic field creates an unhealthy and almost certainly unproductive sense of competition among young researchers, and this competitiveness should in no way be complemented by grudge or resentment based on unjustified or ill explained differences in working conditions.

Another major challenge that DRs face is the successful creation and maintenance of an open, fruitful and respectful relationship with their supervisor(s). We have very few tools at our disposal to change or improve an unsatisfactory situation, and the traditionally very hierarchical and largely dependent nature of supervisory relationships in Germany exacerbates candid communication of potential problems with one's supervisor(s). While DRs working at one of the MPIs are generally satisfied with their PhD, dissatisfaction and thoughts about quitting clearly correlate with and may thus partially be a consequence of difficulties with supervision. These difficulties may be personal; they may be a result of different research paradigms, demands and expectations; they may simply result from a lack of communication but they may as well result from disinterest, disregard or even from full-on power abuses and exploitative work arrangements. PhDnet therefore demands mandatory leadership training for supervisors and an implementation of practicable feedback mechanisms. Thesis advisory committees (TACs) can help disperse responsibilities and workload for supervisors and thus drastically improve the supervision situation. Many DRs agree that their TAC contributes to the scientific quality of their projects. TACs may also aid in alleviating harmful dependencies resulting from person-centered supervisory relations.

According to the survey, violations of good scientific practice (GSP) fortunately seem to be rare in the MPS. However, knowledge about what the rules of GSP entail are less well known in some institutes. The ombudsperson system, designed to monitor compliance with GSP regulations, is often criticized and denounced by DRs. Ombudspersons in some institutes are not considered neutral and trustworthy, and this finding is alarming: the MPS' reputation as one of the leading research institutions in Germany needs to be based on rigorous, unbiased and well-founded research, and violations of GSP need to be reported and subjected to critical scrutiny, independent of the violator's field of research, their position, or their academic prestige.

Further, the survey provides intriguing insights into the unnerving challenges DRs face when it comes to long-term planning. The changing structure of the academic field brings in its wake a scarcity of permanent positions and constant job insecurity for non-tenured researchers. It demands frequent residential mobility and flexibility, and favors some types of research and publications over others. While many DRs want to stay in academia after finishing their PhD, few expect to be able to do so. In addition, DRs tend to suspend family planning and parenthood. While the MPS attempts to support DRs with children in different ways, the variety of offers is often perceived as confusing and intransparent. Hence, information needs to be disseminated proactively and in a clear way.

Needless to say, many of these aspects are not unique to the MPS, which is why we are thrilled about the chance to compare findings across Helmholtz institutes, Leibniz institutes and MPIs in the years to come. Most of these aspects are neither unique to non-university research nor to research conducted in Germany. While we acknowledge this fact, there is no reason to resign or to stop voicing concerns. As we state in the survey report, "the MPS maintains a powerful position as a potential role model in the academic system due to its good domestic and international reputation. As a result, we believe that the MPS has the tools as well as the institutional and symbolic power to address these issues and to push for changes on a larger scale".

The survey group is thankful to all DRs who participated in the survey and who shared their experiences and opinions. We hope future surveys will provide many more insights, foster communication and cooperation with the MPS General Administration, and receive a great deal of academic and public attention eventually leading to an improvement of DRs' situation overall.

# Mental Health Awareness Week 2019

by MADELEINE BLEASDALE


Photo Credit: https://totalshape.com

Over the last few years, the conversation about mental health in the workplace has gained momentum. More employers are taking action to support their staff and promote a healthy work environment, including the implementation of mental health first aid training, banning out-of-hours emails and trialing a 4-day working week. There has been growing recognition that mental illness is a global public health problem requiring significant investments in research to improve treatments and the establishment of support systems. Despite these developments, there is still a long way to go to ensure that organisations are able to support and protect the mental health of their employees.

The mental health of researchers and academics has come under increased scrutiny with a number of studies beginning to expose the true extent of this potential epidemic. In 2018, a survey of over 2,000 graduate students showed that they were six times more likely to suffer from depression and anxiety in comparison to the general population. In May 2019, the first International Conference on the Mental Health & Wellbeing of Postgraduate Researchers took place in the UK. The conference sold out at a record speed, demonstrating a real desire to learn more about mental health and to generate solutions to combat the shortfall in support for students, postgraduates and researchers affected by mental illness.

Raising awareness about mental health in academia has been an important long-term objective of PhDnet. Over the past few years Offspring have featured articles about the history of depression and Max Planck mental health initiatives, including a workshop that identified stressful and negative aspects of the MPS doctoral experience and generated potential solutions to combat them.

This year, PhDnet launched Mental Health Awareness Week (MHAW) (7-11th October) encouraging employees of the Max Planck Society to start thinking, talking and engaging with one another about mental health. By raising awareness, we hope to reduce the stigma around mental illness, enabling people to speak openly without fear of judgement, and in doing so, help in creating a healthier work environment.

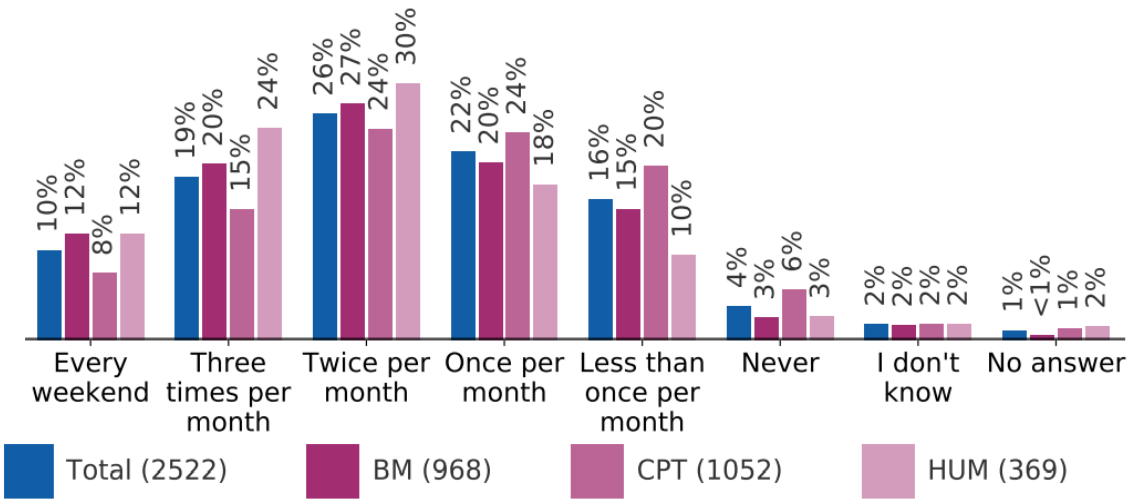
Mental illness can affect anyone at any level but here we will focus mainly on the challenges that doctoral researchers are facing and tackle two key questions: Why is poor mental health an inherent issue in academia? And: What can we do about it?

## The culture of busyness

Many of us have answered the question, "How are things going?" with "I'm so busy!" This almost automatic response seems to be the accepted way of demonstrating a hard-working and diligent lifestyle. In our fast-paced modern world, many people glorify overworking, wearing busyness like a badge of honour. Rather than associating increased leisure time with success, there is evidence that a busy, overworked lifestyle has now become an important status symbol. If you are busy, you must be important. For most doctoral researchers there are times when an impending deadline forces them to work overtime but continually celebrating overworking is harmful. If someone says, "I've worked 60 hours this week", we should feel concerned rather than impressed.

### Publish or perish

It is no secret that researchers are judged largely based on their publications. For those doing a PhD by publication, the entire qualification rests on getting articles accepted and published. But the pressure persists at all rungs of the career ladder with universities and funding bodies ranking candidates on the quantity and quality of their scientific articles. The pressure to publish cannot only lead to bad practices such as "salami slicing" or multiplication of authorship but can have a detrimental impact on researcher's mental health. In particular as a doctoral researcher, the publication progress is largely influenced by external processes such as journals' administrative processes, reviewers' feedback and co-authors' corrections. The often difficult and drawn-out process of getting a paper to publication can leave many feeling frustrated, disappointed and demoralised.




„How often have you worked during weekend or public holidays in the past year?" Relative response rates grouped by section. Total number of responses is shown in brackets. Photo Credit: PhDnet Survey Group

### Work-life balance

The flexibility of working times within academia has its advantages, but it also means work can easily spill over into evenings and weekends. "I'll take a look at it this evening" is an all too common phrase. Although many doctoral researchers have employment contracts, the 2018 PhDnet Survey showed that many are working more than they are being paid, averaging an additional 11.2 hours per week. And only 4% of participants stated they had never worked on a weekend or holiday during the past year. This year, the PhDnet Steering Group successfully secured an extra 10 days of annual leave for all PhDs. But will doctoral researchers take these extra days? And if they do, will they still feel obliged to work during their vacation?

### Job insecurity and relocation

The job market for academics is tough and it has been estimated that less than 20% of postdocs will ultimately secure a tenure-track or permanent research position. The lack of job security can put huge strain on individuals and be a major source of anxiety and stress. Those willing to chase the available jobs must reside themselves to the prospect of relocating every few years and this is particularly hard for those with partners and families.

## A way forward

There is no single solution for creating a healthy work culture or environment, especially when some issues stem from deeply ingrained attitudes and will require significant structural changes of funding bodies and academic institutions. But changes can be made at every level to raise awareness of mental health and, in turn, support those with a mental illness.

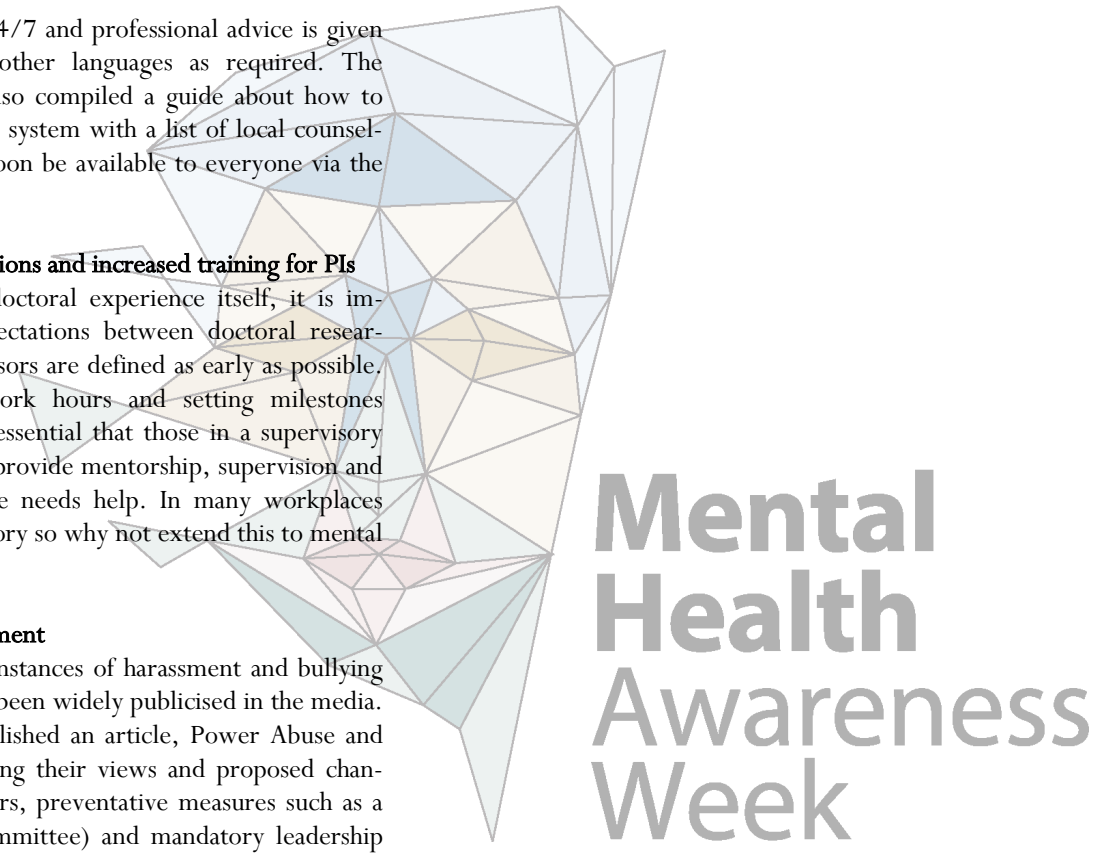
1

### Breaking down barriers

The first and most important step is to decrease the stigma around mental illness. Many people living with a mental illness are reluctant to tell their employer, fearing judgement from peers and harmful effects on their career prospects. Nobody would hesitate to call in sick if they had the flu but there still remains a stigma around mental illness. Even at the most local-level, actions can be taken, such as checking in with a colleague who might not appear to be doing so well. It does not take long to send a message or make a phone call. And if you feel comfortable, sharing your own experiences about mental health can foster a more open and supportive environment.

At an institute level, it is important to increase access to information about local mental health services and occupational medicine (Betriebsarzt). For new employees, it can be particularly daunting to navigate a new health care system. All MPS employees are now able to access the "Employee and Manager Assistance Program" (EMAP). This is a free, anonymous on-the-spot counselling service offered by the Fürstenberg Institu-

te. The helpline operates 24/7 and professional advice is given in German, English and other languages as required. The MHAW committee have also compiled a guide about how to navigate the German health system with a list of local counselling services and this will soon be available to everyone via the MHAW website.




2 **Defining expectations and increased training for PIs**

Turning to the doctoral experience itself, it is important that expectations between doctoral researchers and supervisors are defined as early as possible. This includes outlining work hours and setting milestones throughout the PhD. It is essential that those in a supervisory role are trained on how to provide mentorship, supervision and can identify when someone needs help. In many workplaces first aid courses are mandatory so why not extend this to mental health too?

3 **Conflict management**

In recent years, instances of harassment and bullying in academia have been widely publicised in the media. PhDnet have published an article, Power Abuse and Conflict Resolution, detailing their views and proposed changes. For doctoral researchers, preventative measures such as a TAC (Thesis Advisory Committee) and mandatory leadership training for PIs have been called for but further steps are needed to protect the wellbeing of researchers affected by conflict.

4 **Beyond the office**

For many people their work forms a core component of their identity and it is no different for those pursuing a doctoral degree. Scientific research can be highly demanding, requiring huge personal investment, and as a consequence many people's self-esteem is highly dependent on how well their research is progressing. It is therefore important to create boundaries and cultivate interests outside of work. Leisure activities and hobbies are important ways of connecting with others and relieving stress. Although counterintuitive, taking a break from research and dedicating time to non-academic activities can ultimately lead to increased productivity at work.

**Change will not happen overnight but everyone can do something to break the stigma around mental illness - be it reaching out to a colleague, compiling information about local health services or campaigning for change at the highest levels. We hope that as many people as possible participate in the Mental Health Awareness Week and use it as a stepping stone towards fostering a more supportive and inclusive work environment. For more information and resources please visit the MHAW website.**

**https://www.phdnet.mpg.de/events/mental-health-awareness-week**

# Women in STEM
# - From counting the numbers to making the numbers count

by ALBA GONZÁLEZ

In a globalized world, workplaces are becoming increasingly diverse and with this there is the challenge of adapting and providing equal opportunities to all employees. The fact is, inequalities still exist for many diversity groups, including gender differences. Corporations acknowledge that women are being paid less than their male counterparts, the so called "gender pay gap".

Moreover, women face many challenges when they try to advance their careers, which constitute the "glass ceiling" that hinders them from climbing the corporate ladder. Considering the main benefits of a diverse working environment, which include productivity and innovation among other things, businesses and institutions are moving towards gender equality. They are implementing a variety of approaches that focus mostly on increasing the numbers of women in top positions. Others are more ambitious by trying complex qualitative approaches that create opportunities for women to thrive in the working environment. What are the prospects for gender equality in Germany? This article evaluates the current legislative framework and proposals taken both nationwide and by the Max Planck Society aiming to tackle the problem of gender inequality.

## Gender Equality in Germany - Not quite

Gender equality is the state by which access to resources and opportunities is unaffected by gender. In Germany, gender equality is still far from being achieved, evinced by several alarming facts. For instance, the European Institute for Gender Equality placed Germany below the European average in this category. Even more worrisome, the Global Gender Gap Report 2008 shows that the salary gap between men and women are among the worst in Europe. These differences in salaries can be partially explained by the vocational choices of women that are still biased towards education and humanities, among other subjects. Moreover, the gender gap is especially wide in Engineering, Manufacturing and Construction, where only 20% of the tertiary education graduates are women. How is Germany dealing then with the gender and salary gaps?

Within the national legal system, Germany includes and promotes gender equality as stated in articles 3.2, 3.3 and section 3 of the 1949 Constitution. Lately, The Act on Equality between Women and Men in the Federal Administration and Federal Courts (Federal Equality Act) issued in 2001 supports equal opportunities at the public service level.

In order to increase the number of women in Science, Technology, Engineering and Mathematics (STEM), several initiatives have been launched. For instance, "Mädchen- Zukunftstag" has focused on encouraging young women to familiarise with STEM careers and therefore, gaining their attention. Other actions focus specifically on increasing female presence in STEM by facilitating and retaining women in academia and research organizations. This is achieved by providing funding opportunities to those women in need. As an example of these efforts promoting women in STEM, individual companies and research institutions, such as the Max Planck Society (MPS), are taking the lead in enforcing gender equality through a variety of policies and initiatives.

## Gender Equality at the Max Planck Society - One step at a time

The MPS is one of the leading research organizations in Germany that is advocating for gender equality. Their public report on personnel shows that the proportion of female employees was 44.3% in 2016. However, although this number might sound about right, the reality is that female scientists are still incredibly underrepresented in leading positions within Max Planck Research Institutes. A step closer to bridge this gap was the Central Works Council Agreement "Equal Opportunities for Women and Men at the Max Planck Society" signed in April 2008, where mandatory rules for equal opportunities were established. This agreement states that the MPS should take into account the diversity of female and male employees when making decisions and, in order to prevent discrimination. Later, in 2012, the MPS made a voluntary commitment to increase the proportion of female researchers in professorship positions (W2, W3) and in higher remuneration groups (E13 to E15) of the Collective Wage Agreement for Government

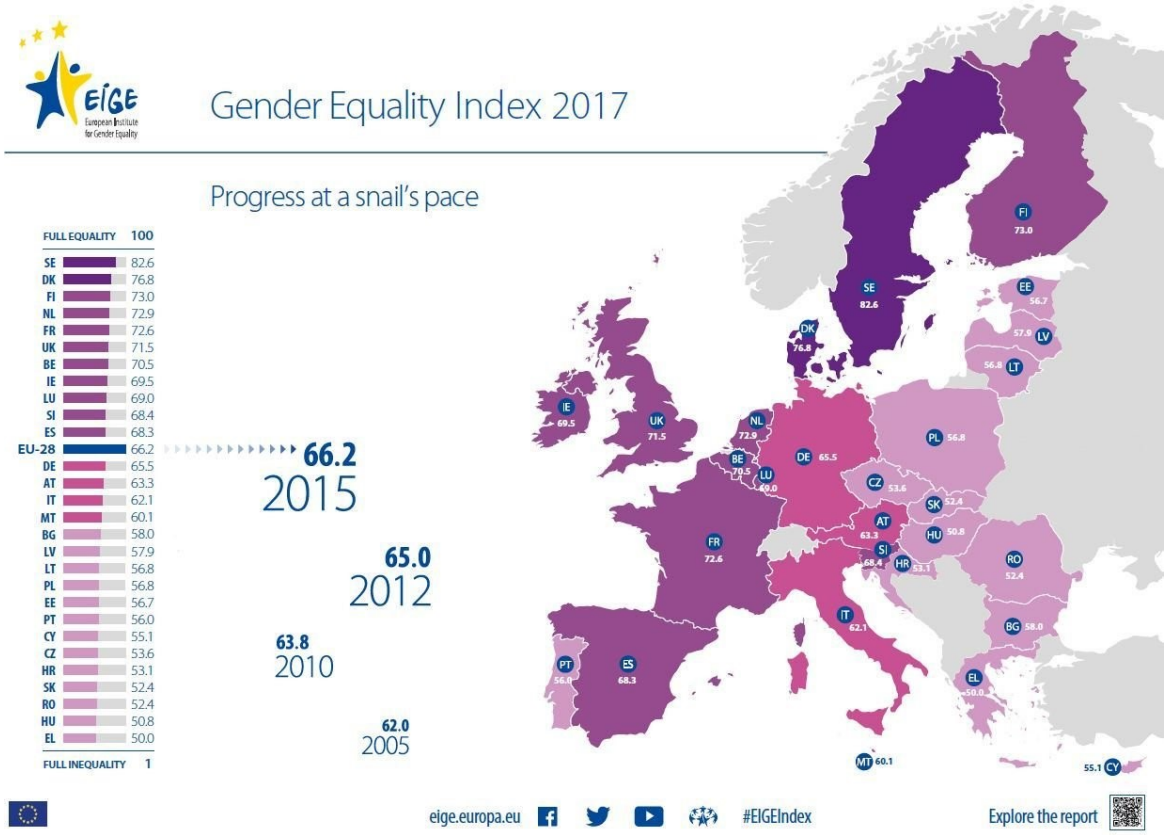



Photo Credit: European Institute for Gender Equality Report 2017, displaying the gender equality index by country.

Service Workers (TVöD). Although efforts have been made, in 2014 only 27.3% of W2 and 11.2% of W3 positions were occupied by women. The aim was to increase these by 5% more in 2017. This target was agreed by the Federal Ministry of Education and Research and the Joint Science Conference. Although an overall 5% increase is an ambitious target, Peter Gruss (former Max Planck President) said to his colleague directors; "I would ask you all to not only give greater consideration to applications from women, but also to proactively and with open eyes approach young female scientists who are worthy of promotion."

Along these lines, late in 2017, the MPS came up with an initiative to keep more women as faculty by a women-only hiring process. The main purpose of this initiative is to reduce the stated underrepresentation of women in scientific research leading positions through the "Lise Meitner Excellence Program" with a budget of $35 million.

Many of these initiatives are a quantitative matter, such as balancing the distribution of women and men by increasing the number of women in top positions. Counting the numbers is a first step forward towards gender equality. Exact numbers regarding the impact of these approaches, both nationwide and within the Max Planck Society remain to be seen. Women scientists are now being supported more than before, but what about disrupting the social norms, values, and ideas perpetuating these inequalities from their very base? It is clear that companies and institutions must work towards more qualitative approaches to fight gender bias. These qualitative approaches are the ones that make the numbers count, disrupt stereotypes and ultimately provide women and men with the same opportunities and access to power and resources.

This article was inspired by and created as a diversity case assignment for the Coursera MOOC "Diversity and Inclusion in the Workplace" from ESSEC Business School.

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# “A Solar storm chaser”

An Interview with MIHO JANVIER

Miho Janvier in front of a model (not to scale) of the ESA satellite called SoHO. Photo Credit: Miho Janvier

Last year’s Visions & Science conference organized by the Max Planck PhDnet was centered around the topic of Science & Society (also see Offspring print version 2018 https://www.phdnet.mpg.de/46375/Offspring_2018.pdf). Amongst the many exciting talks by various guest speakers one highly motivating talk by “Solar storm chaser” Dr. Miho Janvier stood out to us. Miho is a solar/space physicist who studies the sun at Institut d'Astrophysique Spatiale, Université Paris-Sud. Her impressive and beautiful images of our lovely sun and the way she explained her science immediately gripped the attention of the audience. Even as a biologist, who has little clue about space and solar storms, I was able to understand easily what solar eruptions (solar storms) are, how they could impact our life on earth and why this research is so important. Like little children fascinated by dinosaurs, superheros and planets, I was bursting with curiosity and interest. It wouldn’t be an exaggeration to say that after listening to Miho`s presentation, a big part of the audience wanted to become a solar storm chaser themselves. But what was the key to this “success”? How can someone learn to perform excellent science and also give back knowledge to the broader public in an understandable way? And why is that utterly important?

For our Science Communication Awareness Month, the Offspring interviewed Dr. Miho Janvier asking questions ranging from the importance of science communication to tips & tricks for young researchers, social media as a blessing or curse, how to cope with stress when facing many tasks (like doing science, pursuing a career and being a science communication advocate) and women in STEM. Learn more about how Miho ended up being a TED fellow, her favorite science moments (spoiler: there are too many) as well as her recent projects which include exciting Virtual Reality (VR) technology.

**Miho, many thanks for joining our interview. You participated in the Max Planck PhDnet Visions & Science conference in 2018 and gave an excellent and outstanding talk: How did you like the ViS?**

First of all, thank you for the feedback! I had a great time at ViS, the talks from the other speakers were really interesting and informative. I like to attend talks that are not in my field and that give me an overview of what kind of research is being done in other fields. It gives me food for thoughts and ViS was certainly a good place to get my neurons fired! It also gave me the opportunity to meet PhD students who were doing very interesting research; it was great getting to know them.

**And your inspiring TED talk? How did that feel?**

I got into the TED fellowship program in 2017 and since then it has been an amazing adventure. The fellowship program is not a just a one-off event: you get into a community for the rest of your life, and as such you feel like having a new family. The network of TED fellows is incredible, as you get to know people who are truly changing the world with bold ideas. I got to meet activists, social workers, artists, scientists from around the globe and we all share one common thing: a passion for what we do. As part of the fellowship, we are invited in one TED conference to give a talk. My event was at TEDGlobal in Tanzania, so we were in this fabulous setting, near the Kilimanjaro, meeting incredible human beings and getting prepared to give a talk in front of an audience of more than 800 people! Quite scary to say the least, but the energy was fabulous, and because our preparation went for months, everything went smoothly. Then, there is also the excitement when the talk goes online, because with the TED platform, this becomes an opportunity to share your ideas around the world. I wouldn't have dreamed of having more than one million viewers listening to a talk about solar storms! So in a nutshell, I feel incredibly grateful to have been given the opportunity to join the TED fellows family.

**How important is Science Communication for you? And what do you consider are our responsibilities as scientists?**

Its importance, for me, has grown years after years. The different formats I tried when communicating science, whether at small or larger events, have convinced me that the general public really likes science and to be part of it. From kids to adults, I have seen the eagerness to understand in people's eyes and in their questions to me. This desire to understand the world, I think, comes from deep inside us, as curiosity is in our DNA; this is what makes humans explorers in the first place. I also think that it is even more crucial in the current world to communicate, as a scientist, on the knowledge you gain and how you gain it. This is because first of all, most of science is funded by public money, and I feel it is important, and fair, to give back to society by sharing what we learn. I don't believe that results, new understandings, new scientific outcomes should only be held in the hands of a few persons. We work on behalf of the rest of humanity, and as such it is part of our mission to share what we do. I also think that in this day and age when everything and anything can be found on the internet, misinterpretation, or fear of science, can be really harmful (e.g. the theories of anti-vaccines, flat-Earthers). Science communication is not just about communicating our results; it is also about sharing the practice of the scientific method.

**What do you think are the challenges that scientists face when it comes to discussing their science?**

There are many hurdles that I can see, and that I discussed during the round table at the ViS event. First, we are not equipped, as scientists, with the tools to communicate science to a large audience. This might not be true in some countries, but discussing with my colleagues, I realize that the competitiveness of scientific careers means that there is less consideration given to how to better communicate, and discuss, our science. Now, I think this is changing, especially with younger generations that are eager to take on opportunities to communicate their science. But this takes time, and again, it is difficult to set aside some time to do science communication when we (as in, the scientific community) expect a young researcher to be extremely competitive. Finding the balance, finding mentors, finding the right institutional structure that promotes science communication, all of these are difficult to achieve.

**Want to know more?**

@MihoJnvr

**How did you learn to do it?**

When I was doing my PhD, I didn't think too much about science communication. I would say it all started when I got a post-doctoral fellowship from the AXA Research Fund, and was invited to talk about my research to the CEO and other representatives of the AXA group. To prepare for our talks, we were given tips to find ways to explain the science we do in an engaging way. The AXA Research Fund also organized a workshop with several post-docs they financed: we spent two days preparing how to communicate science to a general audience, and I really liked it! Hearing others talk about their own research, whether on volcanoes or on how diseases spread was fascinating, and it gave me more incentive to communicate about what I do. Then, I was given several opportunities to do more outreach, all in different format (vlogging, participating in the FAMELAB contest in the UK, presenting at my institution's open days), and every time I got more joy at the challenge of conveying and sharing my passion for my research. I also had the chance to meet a really talented moviemaker with whom I collaborated on several projects. Dipping a toe in movie production allowed me to consider other formats to do outreach, and since several years, I have been developing projects using augmented and virtual reality to show what kind of science we do in astrophysics. And when time allows, I also like to participate in events, like TEDx events, or record podcasts. I really like the format of podcasts, because you get to have a conversation with someone about anything, and it makes me less nervous than talking in front of a camera!

**Now can you tell us a bit more about your current projects (as non-astrophysicists).**

I would say that I have a foot in two fields: one is solar physics, the other one is space physics. And they are both connected

Miho @ her TED talk in 2017. Photo Credit: TED/ Bret Hartman

due to how our Sun behaves: in the Sun's atmosphere, that we call the corona, the most energetic events in the solar system take place. We call these events solar "flares", as they are associated with intense radiation and energetic particles. Sometimes, they are also associated with the launch in space of enormous clouds of magnetic fields and particles: these are solar storms. They propagate in the solar system, and sometimes, if a planet is on their path, can interact with the space environment of these planets. They are responsible for auroras here on Earth, as well as on other planets of the solar system (although on Earth, they can also harm our satellite and electricity systems, so we really want to be able to predict them!). One of my current projects is on the understanding the conditions of solar flares by simulating the intense magnetic fields in the Sun's atmosphere and comparing these simulations to observations taken from remote-sensing instruments in space. Another project is on investigating space probes data with in situ instruments that are literally in the solar storms and can collect data that inform us on a variety of things (such as the intensity of the magnetic fields) about these storms. By collecting these data, I work on getting the most generic features of these storms, so that we can combine this knowledge with that of their birth at the Sun. With my student and collaborators, we are also now working on a bigger scale simulation, trying to reproduce the ejection and the propagation of such storms all the way from the Sun's atmosphere to the Earth, and compare with the wealth of data we have. As I work as an astronomer in France, part of my work is also about taking care of national facilities. In my case, I work on the Solar Orbiter probe, which is a European Space Agency mission to be launched in February 2020. The probe will get very close to the Sun, so for me this is a tremendous opportunity to get data of solar storms just as they are being born at the Sun and launched into space!

**And how about your exciting new VR Project?**

I have now finished two VR and AR projects: one is Solar Storm VR (www.solarstormvr.com), which is a short 360 movie about solar storms for VR headsets, and an augmented reality project about solar physics (hopefully soon available on stores so that it can be accessed on any device). Since I am involved in the next ESA solar/space mission called Solar Orbiter, I have started a new project, which will showcase the mission and the specificities of the spacecraft in virtual reality. We have already finished the proof of concept and can't wait to work on it more! It should be ready for the launch of the mission (February 2020, fingers crossed!).

**What was your best Science moment ever?**

There are several, I cannot pinpoint one in particular. I think there are all these moments when I discuss with some colleagues and we discover and/or understand a phenomenon, and at that moment you know you are the only ones to know about this. It is really exciting. Other moments, although it might

sound nerdy, are when I work on space data and I pause for a moment and realize that the data that I am analyzing come from a tiny robot somewhere in the solar system that we, humans, sent on a giant rocket. It blows my mind and gives me goosebumps to think about this!

**You opinion on Social media: Blessing or Curse?**

Both! I clearly spend too much time on social media! In all seriousness, I believe they can be detrimental if used too much. We can already see the effect on the mental health of teenagers, so in a way one really needs to have a healthy relationship with social media. I try to have rules (like no phone before/ after a certain hour), but I also really love the interactions and the accessibility social media give. I've followed more science projects, opened my mind to new subjects, new fields just by browsing social media. I get inspired by people who share their stories on social media. And finally, I myself share a lot and have had really great conversations with random people through social media. So as long as you know how to use them, I think they are great at communicating your science and reaching out to people who might not have thought about science without them.

**What advice would you give young researchers on their way to empower themselves and openly discuss their science?**

Start as soon as you can, and get help along the way. Try everything, especially when you just start. Science communication, and communication in general, comes with practice. Start with local organizations (like science clubs) or schools. Get involved in local events. About getting help: the hurdles I mentioned earlier are going to get bigger as you are doing more science communication, so try to get help, whether it is by finding a good mentor, or by getting support from your organization.
But also, I strongly encourage you to understand the current issues around science, for example, and especially, issues around gender or equal opportunities. This is because as you are doing more and more science communication, you become an advocate for science, and it is important that you use your voice to help changes occur for the better in the scientific world. The words you will be choosing, the way you will express yourself when communicating: all this has been crafted by the social norms of the field you come from, and it is important to be aware of all this so that you can use communication to the best of endeavors; that is, to inspire as many people as possible and let your audience know that science is for everyone.

**How do you manage a balance between doing your science and science communication & outreach projects, which are both very time consuming?**

I wish I had a secret formula for this! Unfortunately I don't, and I am still trying to figure out this balance. And even if everything seems to be in balance one day, I know the feeling will disappear the next day. I guess that is life! I think one thing I have realized recently is that it is important to take care of yourself first, because without this foundation, the rest cannot follow. Find out the ways to be in a good place mentally and physically, then figure out what you like to do, where you are losing time for unnecessary tasks and try to reduce them. Reflect on what your core values are, what makes you happy, and try to spend as much time as possible doing that. This means learning to say 'no' to things, and I am certainly still learning to do that!

**I am pretty sure the majority of us can relate to that to some extent. But let me ask you how do you relax from all of this?**

My personal time is really important to me, and since I have many hobbies, I do spend quite a lot of time away from science and outreach. Spending time in nature for me has become one of my relaxing hobbies, and I do so by being active: I love outdoor sports, so whenever I can, I go snowboarding in the winter, and surf and hike in the summer. I picked up free diving some time ago, so I am also always up for new challenges. I also do and teach yoga and meditate, which has really helped me stay afloat at times. Finally, I have started a routine of reading more regularly, which is something I didn't realize I

How do you relax from all of this? Miho spending time in nature.
Photo Credit: Miho Janvier

missed so much, and always have a podcast in my ears when I commute. Both help me gain perspective and realize there is a lot happening in the world!

**Last but not least we wanted to collect some opinions about current topics in the general research world and focused on Women in STEM.**
**What do you consider important steps that group leaders, professors and institutes/universities should undergo when it comes to Equal Opportunities in Science?**

Educate themselves! I think that should be compulsory. There are many books written on the subject to be read, seminars to be attended, discussions to be had. It is the role of both individuals and institutions to do the above and provide an environment that is safe and nurturing for minorities. When I hear that certain research areas are "not doing too bad", it makes me angry and sad that my peers are not pushing to make things better, because we are still so far from equal access to opportunities. We are only starting this conversation, so I hope that at every scale, whether individuals, teams, divisions, institutions and communities, the conversations continue and applicable outcomes come out of it.

**What challenges did you face or do you notice in you daily work-life working as a young and successful woman in your field?**

Being a young woman in science is a double-edge sword. There are the obvious challenges, for example not being taken seriously, being seen as "too young" to have the space to express my voice. Fortunately, this does not happen in my community: as I have been around for several years now, people know my work. But outside of this community, I do face the usual dismissiveness or being mistaken for a student. I have been to meetings or been part of discussions where I have felt very little confident. Part of it comes from my own insecurities, probably nurtured by years of feeling inadequate, but sometimes the environment creates this as well (being cut in the middle of sentences, being mansplained). The more we have these conversations with friends and colleagues across fields, the more I realize that many women live similar experiences.
Then, the double edge is that for people who know my work, being "young" and "female" means that I am asked to participate to a lot of committees or groups, first because being young is often equaled as having more time (we do have the same amount of hours in the day as senior people though!) and because there are less women in the science community.

**Imagine you have a magic wand and can change three things regarding this, what would it be?**

First, my first wish would be for the present: I would give more confidence to women and underrepresented communities in STEM right now. Have you heard of the imposter syndrome? It is so much more prevalent amongst these people. So, giving a boost of confidence would make them already feel so much better about themselves and let them know that they really belong to this field.
My second wish would be for the past: it would be that all the persons from underrepresented communities (women, POC, etc) who have participated in scientific discoveries in the past get immediate recognition. There are many stories of such people who were forgotten and were never mentioned. Some of them are rediscovered, but most of them we might never know of. So I would use my magic wand to go back in time, change history books and give them the recognition they deserve.
My third wish is for the future: I want the rules and the laws to be changed to facilitate access to science to underrepresented communities. Rethink access to education not as a privilege but as a right. Provide community and society support for women and family carers to pursue a career in science. Make the scientific career a flexible one, one that is adapted to many profiles rather than many profiles adapting to one.

Photo Credit: Miho Janvier

For more information on Miho, her TED talk and some of her projects make sure to visit the following websites:

https://www.mihojanvier.org/
TEDtalk: https://www.ted.com/talks/miho_janvier_lessons_from_a_solar_storm_chaser?language=en
Solar storm VR project: www.solarstormvr.com

# Be brave and try out: Outstanding MPS's young scientists share their experiences

by JULIA DÜRSCHLAG, MERLE ÜCKER & SRINATH RAMKUMAR

Named after a German chemist and the first president of the Max Planck Society, the Otto Hahn Medal is a prestigious award for early career researchers who just finished their PhD at one of the Max Planck Institutes

We conducted interviews with two of the winners from 2018 and asked them about their career path and research, their motivation and their advice for younger researchers. Doing a PhD opens many unique opportunities, e.g. going to conferences and on fieldtrips, exchanging with an international community, acquiring new knowledge and growing as a person.However, during the interviews, we realized that no matter how successful you are, pursuing a PhD also comes with challenges. Claudia Gerri described how frustrating it can be to do science: "Sometimes, or better often, things do not work and do not make sense and it feels like you have hit a brick wall." Also Greta Reintjes has experienced pitfalls during her PhD years and knows about the doubts that come with it. But as she says, "questioning is the basis of science so as a good scientist you obviously also question your life choices." However, "it is important to say that failing is part of the learning process and without it there is no actual progress", as Claudia Gerri pointed out. Greta Reintjes' strategy to deal with frustration is to take a step back and to look at everything what she has accomplished so far: "Usually, you have achieved much more than you thought".

## Claudia Gerri

Claudia Gerri grew up in a small town in Italy where she used to spend a lot of my time at her uncle's farm. Being surrounded by nature and animals, she developed an interest in observing the life and living organisms around her. This is when her passion in biology started. During high school, she discovered that studying science was not a burden but it was actually fun for her. This is when she decided to study Biological Sciences for her Bachelor and Molecular Biology for her Master, both at the University of Milan in Italy.

After her studies, she pursued a PhD in Developmental Genetics at the Max Planck Institute for Heart and Lung Research in Bad Nauheim, Germany. Moving to Germany was no obstacle for her as most people, e.g. at the bank or at the doctor, could help her in English. However, she definitely missed the Italian food.

Her PhD project focused on understanding the role of HIF (hypoxia inducible factor) pathway in the cardiovascular development of zebrafish embryos. She and her colleagues found that this pathway plays an unexpected role in modulating the activity of macrophages associated with blood vessels. Gene knockouts led to reduced macrophage-endothelial cell interaction, which resulted in defects in blood vessel formation. The pathway is also involved in the formation of blood stem cells.

**What made you pursue a PhD in science?**

If I look back at my time at university, I vividly remember the developmental biology course. I was really fascinated to learn about the historical works on various model organisms, like the famous Drosophila mutants in the Hox genes or the inspiring work of Spemann-Mangold on the amphibian organizer. Also, as a Master student, I spent one year working with zebrafish embryos. I remember looking at an embryo under the microscope for the first time, and I was extremely excited. I really loved what I was doing, therefore I decided to pursue a PhD in developmental biology and genetics. I was sure that a PhD would have given me the skills and experience to continue my career in science.

**What was the best part about pursuing a PhD?**

My PhD supervisor gave me a perfect balance of freedom and guidance. I was able to develop my ideas and seeing my projects turning into nice stories with interesting results was really the best part for me.

**What was the funniest moment in the lab/during your PhD?**

I really enjoyed the PhD student retreats. During the day, we were discussing science with other students, postdocs and the invited professors. But we also had fun activities, like hiking or games. In the evenings, we had music and I remember many professors staying up to dance with us! We had a lot of fun!

**What are you doing now?**

I am a postdoctoral fellow at the Francis Crick Institute in London. I study the molecular mechanisms underlying the first lineage specification in mammalian embryos. Specifically, I am investigating how trophectoderm cells, which form the placenta, and the inner cell mass, which are the pluripotent cells of the embryo, diverge in their fate to allow implantation and formation of the fetus. I am studying this process in human, mouse and bovine embryos – I really like to compare and contrast different animals with an evolutionary perspective. I wish I could widen my work on other mammals, for example marsupial embryos are morphologically very different from eutherians, suggesting that the process regulating lineage specification may be completely different.

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

I am great in organizing stuff, so maybe I could be an event planner. I was part of the PhD committee and I helped organizing several PhD student retreats and many activities for the PhD students to get together outside the lab.

**What would you take to a deserted island?**

My pillow, tons of cookies and a good book.

**If you could choose, what kind of animal would you be and why?**

I would be a cat. I am friendly and playful but sometimes I am also grumpy and I like being on my own.

## Greta Reintjes

Already as a child, Greta was very inquisitive. She liked to take things apart and find out how they work. But back then, she had no idea that she wanted to be a scientist. What got her really excited about science was an inspiring biology teacher at high school. Doing experiments, giving presentations about different topics and always questioning what was going on, made her realize that she would like to be a scientist. She followed her teacher's path and went to Plymouth in the United Kingdom to study a Bachelor in Marine Biology. During her studies, she got to know and to love the field of marine microbiology which led her pursue a master's degree and finally a PhD at the Max Planck Institute for Marine Microbiology in Bremen, Germany.

What started as a naïve idea of a master student turned out to be a promising PhD project. She investigated the uptake of polysaccharides by microbes using fluorescently labelled substrates. Thus, she was able to visualize this uptake under the microscope and learned more about how marine microbes impact the whole carbon cycle.

**What was the best part about pursuing a PhD?**

A Cruise to the South Pacific Gyre was definitely a life-highlight! To go somewhere where nobody has ever been and to sample there was an incredible experience. Otherwise, the whole PhD itself, including conferences and meeting people and the little success moments in the lab were the most fun. You need to celebrate the little joys.

**What was one of the most difficult challenges that you had during your PhD?**

Scientifically the most challenging, was changing the paradigm that large sugars are taken up by cells in a degraded form. People believed that extracellular digestion was the only way that large sugar molecules can be taken up because they are too large to just pass the cell membrane. Trying to prove and convince the scientific community of our discovery of an alternative uptake of sugar molecules was really difficult. Once people formed their opinion, even scientists, it is a challenge to change their mind-set.

**What are you doing now?**

I work as a postdoc at the Agriculture and Agri-Food Canada in Alberta. Here, I study sugar degradation in cow rumen, which is a completely different system. But I still use fluorescently labelled substrates, so the same methods as in my PhD and my first post-doc. Many of these substrates are prebiotics and we try to track them and to analyse their influence on the rumen microbiome and its metabolism, e.g. methane formation.

**Do you see a difference in the working atmosphere between Canada and Germany?**

Yes, the working hours are very different, most people here work from 8 am to 4:30 pm. My group is really small which enables lots of communication. What I like a lot is that people with very different background work on the same project but from different angles. The institute is more in an agricultural environment, surrounded by greenhouses, cow and sheep barns. The research that we do is application-based, so it is aimed to be usable for mankind. This is very different to my previous work where we get ground-breaking results but do not follow up on their application. Here, we go a step further.

Scan the QR code to check out the interview with Claudia Gerri and Greta Reintjes

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

I am not sure. I just followed the path and never really thought about something else. Maybe I would do design or some artsy stuff as I have always liked to create things.

**What was the funniest moment in the lab during your PhD?**

Oh, there were so many! Trying to count cells under the microscope during a storm on a cruise when the cells move all the time was one of the funniest. It is not the most pleasant but definitely funny to watch other people do it.

**What is the greatest method that has not yet been developed?**

To stay in my field: Microscopes with an even better resolution would be amazing. Then, we could fluorescently visualise individual cell organelles like membranes. This would be great because a picture speaks a thousand words.

So here comes their advice to early career researchers:

Do not get discouraged if experiments do not work or if the results do not fit to your hypothesis. It is essential to talk to people and to be open-minded. You need luck, patience, perseverance and the willingness to put in the hours but also to wait for a good result. Keep on thinking, reading, observing and discussing your ideas. Be brave to try something out!

# Munich Science Slam – Improving science communication by improving presentation skills

by ALEXANDRA KLEIN

All of us have experienced at least once in our life as a doctoral researcher how tiring, boring and useless scientific talks can be. At times you are overwhelmed by the sheer mass of data on the slides, the talk is way too long and stuffed with irrelevant information, or the speaker just simply cannot bring across his points. In the end, you leave the seminar room without any major gain in knowledge, feeling your time would have been better spent at the lab bench. This needs to be changed! Researchers have to be able to communicate their science clearly and precisely. This is crucial not only to avoid a sleeping audience, but also to boost the scientist's personal career (which PI would hire a postdoc who is not able to convince that his PhD work is actually really interesting?). Furthermore, a good scientific talk can advance scientific knowledge in general and promote public awareness to increase social support for science and help inform decision and policy makers.

After considerable thought about this problem of bad science talks, I decided that I wanted to organize a very unique event to teach speakers and the event audience how to present scientific facts clearly, precisely and to be more engaging. Luckily, I spoke to a friend and colleague of mine - Nick del Grosso - just at the right time: He was just as excited as me and jumped onboard without any hesitation. And thus, the **Munich Science Slam** was born. In general, a science slam is an event where scientists explain a scientific topic to an audience of non-scientists.


Munich Science Slam Organization Team and Speakers. Photo Credit: Alexandra Klein

Our science slam, however, is different from most other science slam events because of 4 reasons:

- It is not aimed at the general public, but at a scientific audience,
- The speakers present their very own research,
- It is a bidirectional communication event as the audience actively participates
- It is in a niche between conference talks and pop-science talks.

Thus, our main goal is to not only organize an entertaining evening, but also to create an event that improves presentation skills among researchers.

The Munich Science Slam consists of 3 parts: a pre-event presentations skills workshop,a rehearsal for the speakers, and the science slam evening event itself. Because Nick is extremely talented and experienced in holding workshops about presentation skills, he is the primary tutor, while I manage the organization of the event.. During the presentation skills workshop, speakers are trained in different techniques to identify the core message of their talk, they learn how to structure their talks clearly and how to tell an engaging, informative and inspiring story. At the rehearsal, the speakers refine their 5 minute talks by giving and receiving feedback in an interactive atmosphere. During the event itself, the audience is also encouraged to listen carefully to the talks and to improve their presentation skills. Thus, the audience votes on the best talk via an online and real-time voting system, giving direct feedback to the speakers. Additionally, to promote interaction between the speakers and the audience, one of the listeners gives a short improvised summary of the previous talk. In the end, the best science slammers are awarded a small prize such as a plushie, T-shirt or book.

The first Munich Science Slam took place in June 2018, and we are more than happy as it turned out to be a huge success! Meanwhile, our organizing team has grown and we are happy to have Amanda Monte (MPI for Ornithology), Lisi Huber (LMU Munich) and Marita Vater (MPG headquarter) on board, taking care of advertisement, fundraising, speaker recruitment and many other such organizational tasks. So far, we have organized 4 Munich Science Slams with more than 40 speakers presenting a diverse range of topics and more than 400 audience members in total. We were sponsored by Google Munich, JetBrains, IMPRS-LS and the MPG, who supported us with the event venue and food, drinks and prizes. In June 2019, we celebrated our 1st anniversary with the 4th Munich Science Slam!

Interestingly, the doctoral researchers of Max Planck are very keen science slammers and usually make up at least half of the speakers. For example, Tom Body from the MPI for Plasma Physics spoke about “Chaos in a coffee cup: Fluid mixing the key to unlocking fusion”, while Lothar Maisenbacher from the MPI for Quantum Optics gave a science slam about "The secret life of electrons" and Nejc Dolensek from the MPI for Neurobiology gave a talk about “How to read emotions in a mouse’s face”. We received an overwhelmingly positive feedback from both our speakers and audience, and everyone felt like they learned a lot – be it scientific facts or delivering an interesting and engaging talk.

**Want to know more?**

@MUCScienceSlam

Having said that, there is always room for improvement as well as more helping hands. So, if you would like to either participate as a speaker or as a co-organizer in the next Munich Science Slam, send an email to munichscienceslam@gmail.com, or contact me personally. Furthermore, we plan to expand the Munich Science Slam to other cities. So if you want to organize a “Berlin”, “Frankfurt” or “Leipzig” Science Slam, we are more than happy to share our experiences with you and support you with our materials.

# Pint of Science
# - Sharing science, over a pint!

by NIKKI VAN TEIJLINGEN BAKKER

Photo Credit: https://londonbeercompetition.com/en/blog/insights-1/green-beer-working-towards-a-new-gold-standard-104.htm

Pint of Science (PoS) is a global phenomenon by now, with events taking place in May each year. PoS was founded in the UK and has since then spread to more than 23 countries, including Brazil, Thailand, South Africa and of course … Germany! PoS Germany started in a couple of cities, like Munich and Heidelberg, and included 12 cities this year. The goal of PoS is to bring science to lay people in a casual environment, like a pub. In this way we hope to engage locals with the science being done around them and try to encourage visitors to ask questions and engage in discussions with local scientists about their work.

My PoS career started in 2014 during my MSc at Glasgow Uni, Scotland. As the neuroscience team leader, my team and I were in charge of organizing 3 nights of psychology and neuroscience talks in a local pub. In parallel talks on two other topics were organized in the city as well. So, when I came to Max Planck Institute for Immunobiology and Epigenetics in Freiburg for my PhD, I immediately noticed a gap in the engagement of local scientists with the public, and decided to introduce the PoS brand to Freiburg. I reached out to the German national PoS team, and they assigned me to the post of City Coordinator in Freiburg. With the help of fellow MPI scientists, we organised the very first PoS event in Freiburg, in 2018. Our first and foremost challenge was that we had only one native German speaker in the organising team, and therefore decided to organize the event entirely in English. We then realized that the 'public' part of public engagement was kind of lost, but it worked out very well for a pilot event!

For the most recent event held at 20-22 May 2019, we decided to organise two events in parallel, one in English and the other in German. This meant that we organised events for 3 nights, in 2 bars, with 2 talks on 1 topic per night per bar. This was quite a step up from the last year, where everything was confined to 1 location, 1 language, 3 topics. After extensive promotions with 1500 flyers and 60 posters, both our events were successful, the bars filled with attendees, and one event was even sold out the night before we kicked off!

Now, although our events were successful and enjoyable, there are a couple of things that someone organising scientific enga-

gement events has to look out for. First of all, finding the right speakers and ensure that they are informed of the goal of the event is crucial. Less data is usually better data. You are looking for someone who can talk about their research in the perspective of their field as a whole. Someone who is comprehensible and entertaining at the same time. Speaking about your work to someone with a different background in science is already difficult, but imagine explaining immunology to someone who doesn't even know what a cell is, or cancer to someone who has no idea about DNA. That is tricky and requires skill and training. As a broader perspective, I believe that it is important that scientists at any level are educated on how to talk to lay people, which is as much a useful soft skill as scientific presentation. Additionally, it is important to attract the public. The reality is that, usually mostly university students show up to these kinds of events. But, with the right advertisement, you might be able to recruit at least one grandma from the münsterplatz to attend the event - that was our goal at least. Of course, you might run into the language barrier that we experienced in 2018, but this can be worked around and circumvented.

In the end, I believe that events like Pint of Science are not only important for science and scientists, but for society as a whole. Society is essentially paying for most of our research. Glasgow Uni had many public engagement events with a lot of focus on speaking to lay people about your science. In my opinion, the information flow from scientists to non-scientifically educated citizens was very good. I believe that this was in part due to the information provided by various non-profit organisations that also fund research. Take for instance Cancer Research UK, which has an excellent website where anyone can find information about various types of cancer, treatments and clinical trials. On the other hand, their previous problems with animal ethics and rights activists have forced UK research institutions to become more forthcoming with information about their experiments and research. This has shown to be very beneficial for the acceptance of animal research and research in general. Lastly, one of the reasons why I am so passionate about public engagement as a whole, is that I hope that disseminating information through more general channels, in a pub, on tv, on youtube, in books etc, will combat misinformation and 'fake' news and teach people to think critically about published studies. This is of course challenging, but I hope that we, as the young scientific community, can use our creative minds, step out of our comfort zone and talk to lay people… Ideally over a pint! ;)


Photo Credit: Patrick Fore on Unsplash

# WireUp - connecting the Neuroscience PhD community of the MPS

by DORIS HERMES & NIKOLAI HÖRMANN

In May 2019, the first WireUp symposium (https://www.neuro.mpg.de/wireUp) took place at the Max-Planck Institute of Neurobiology (MPIN) in Martinsried, Germany, to connect graduate researchers from neuroscience-focused Max Planck Institutes (MPIs). Over sixty participants from eleven MPIs took part in the meeting to share and communicate their research. The three-day symposium started with a keynote lecture by Alexander Borst, one of the directors at the MPIN, giving insight to current research done in his group "Circuits - Computation - Models". The lecture was followed by the first poster session with lots of discussions which were continued after the barbeque in the evening. On day two, a variety of talks from graduate researchers of the neuroscience-focused MPIs were presented, and the second poster session took place. Afterwards, the attendees toured the labs where they checked how zebrafish are used in research and how a Drosophila brain looks like through 3D glasses. In the evening, the institute's band played and all attendees could share their different PhD experiences over pizza. The last day of the symposium started with more talks by graduate researchers and was followed by a mentorship session with Wolf Singer, emeritus director at the MPI for Brain Research and Senior fellow at the Ernst Strüngmann Institute, Frankfurt am Main, Germany. The mentorship session was full of vivid discussions about science before the digital era, and it gave the opportunity to ask questions. In the end, best poster and best talk were awarded with a WireUp hoodie and everybody interested could go on a Munich city tour.

Organizing a new symposium from scratch is not easy. One of the initiators and organizers, Nikolai Hörmann, a graduate researcher in Alexander Borst's lab at the MPIN, shares his experience, starting from conceptualisation to the successful organization of the WireUP symposium. Moreover, he would also like to encourage other graduate researchers to roll up their sleeves and organize a symposium of their interest as well.

Nikolai reports: "During the 2018 PhDnet meeting, the need for a neuroscience-focused symposium was raised by several PhD representatives. Our aim was to bring together graduate researchers from different neuroscience-focused MPIs in order to share scientific results, receive input from their peers, and extend their own network in the scientific community. Notably, the symposium was modelled after the famous Gordon Research Conferences (https://www.grc.org) with their preceding seminars only for early career researchers. As the Max Planck Neuro meeting of PIs was taking place in Munich in May 2019, we wanted to have our satellite meeting for graduate researchers around that time as well. More importantly, the established infrastructure and the facilities of the MPS could help promote and support the event."

Attendees of the 1st WireUp meeting 2019. Photo Credit: WireUp Organizers

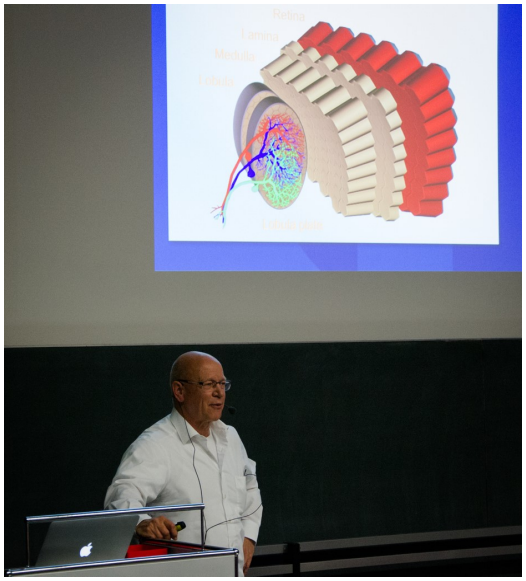
Nikolai continues: "Quickly, the organizing committee decided to set up the first WireUp in Munich. The first step was to convince the directors of the MPIN of our endeavour. By thoughtfully writing a concise and coherent proposal and after a few discussions the symposium was approved. We had about four months left for the organization before the symposium was supposed to take place. Luckily, graduate researchers from our institute were highly motivated to help and join the organizing committee. We assigned roles for advertisement, finance, catering and programme coordination with two people in each team. As all positions were fil-

led, we could finally start with the actual organisation. Our committee was very productive, because everyone worked independently and updated the rest during our weekly meetings. We kept track of the topics that were discussed and made a list of tasks that needed to be taken care of. Additionally, we got invaluable support from our graphics team, our local administration, and the cafeteria. Soon, the preliminary programme was designed, the funding secured and we only had to wait for people to sign up. With the help of PhD representatives at the different institutes, PIs of the MP Neuro Meeting and IMPRS coordinators the advertising was effective in attracting graduate researchers allowing us to fill the slots for the talks and arranging the poster session in a reasonable way. The preparations were completed and the symposium could start. The three days past by in what felt like a blink of an eye. Our last task was to ask for an honest opinion of the conference by the attendees. To our relief, the feedback ledus to believe that it was a success and we are hoping that this was not the last of its kind."

"From my personal point of view", Nikolai reminisces, "organizing the symposium might have led to some lack of sleep and additional work, but overall, I gained a lot of experience. I had to plan each working day carefully to be more productive, because there was a lot to be done within those four months. I also learned to value the good communication in our organising committee and how important it is to assign responsibilities. Furthermore, I realised that a positive attitude and a motivated organizing committee where everyone's opinion and thoughts are equally valued help to overcome the hurdles of setting up such a symposium. Bringing the first WireUp symposium to life was an experience I would not have wanted to miss and I would encourage any graduate student to start organizing their own symposium as well! "

Photo Credit: WireUp Organizers

Poster discussions.



Keynote Lecture Alexander Borst.

Evening get together.


Mentoring session with Wolf Singer.

# Corrosion: We rest, the world rusts

by CLAUDIA MEROLA

Max-Planck-Institut für Eisenforschung GmbH

The word "atom" comes from the Greek word "atomos", meaning indivisible. Therefore, even if their thought was not accurate, the ancient Greek philosophers already stated the presence of atoms as the smallest constituent of matter. The two most important philosophers that talked about atoms were Democritus and Aristotle.

Democritus believed that everything was a result of natural laws. He explained that matter is composed of atoms, which are physically - but not geometrically - indivisible, and that they are separated by empty spaces. Moreover, he added that atoms are indestructible and always in motion. Aristotle vehemently opposed the atomic theory developed by Democritus. He believed that matter was not made of tiny particles called atoms but of four different fundamental elements: air, fire, water, and earth.

Democritus' thoughts were later proven to be partially correct. Nowadays we know, of course, that all elements are made of atoms that are divisible and composed of protons, neutrons, and electrons. However we will need a couple more centuries to actually reach this standpoint. These constituent parts of matter are indispensable in understanding many day-to-day phenomena.

These constituents of matter, i.e. atoms, are indispensable in understanding many day-to-day phenomena. Now I would like to ask you to look around your office, your room - try to focus on the objects and to mentally remove all of them that contain or are made of some metal. I wonder how many objects you can still see. I guess there is not much left. And yet, all of us have noticed that rust forms on many of these metal pieces if they are exposed to air and bad weather. This phenomenon, that takes place due to interactions at the atomic levels in metals is what chemists call "Corrosion".

The branch of science that studies corrosion is called electrochemistry, which is the study of chemistry to use or produce electricity. Reactions like corrosion happen at electrodes, which are made of conductive materials (i.e. metal) placed in contact with an electrolyte, a solution that contains ions (an atom or molecule that has a non-zero net electrical charge). During electrochemistry reactions, electrons are exchanged between the metal and the electrolyte, so the oxidation number of the elements involved is changed. If the element gains electrons it is said to be reduced, and if it loses electrons it is said to be oxidized. A redox reaction is when both oxidation and reduction are happening. If the reaction is spontaneous ($\Delta G < 0$, where G is the Gibbs free energy, used in physics and chemistry to calculate the maximum reversible work that can be performed by a reversible system under constant temperature and pressure), the electrochemical reaction can be used to produce a current in an electrochemical cell. This is the basis of all batteries and fuel cells. On the other hand, a non-spontaneous electrochemical reaction ($\Delta G > 0$) can happen by applying current at sufficient voltage. Water splitting would be a typical example of this. When corrosion happens, the electrochemical reactions involved are spontaneous.

Most corrosion phenomena are of an electrochemical nature and involve two or more electrode reactions. However, the most important thing to remember is that they always involve an anodic reaction (dissolution of the metal) and a cathodic reaction (reduction of an oxidizing agent). This means that no matter what we do, thermodynamics plays against us. The only factor which we can control is kinetics, or how fast the reaction is actually occurring. Because corrosion is a natural process and metals are part of our everyday life, a lot of money is invested every year in slowing down this phenomenon and investigating new methods to prevent it.

It is easy to find common objects that show signs of corrosion. Just think about automobiles that are composed of different materials such as metals, plastics, paints, metallic coatings, all of which are exposed to aggressive conditions like atmospheric agents or high temperature. If you observe an old car (e.g."Tow Mater/ Hook" from the Pixar movie Cars), you will for sure see some corrosion products. Traffic signs, street

lamps, and many other items seen along roads are usually manufactured of galvanized steel. Check them closely you will see some "white" corrosion (zinc oxide), characteristic of the oxidation of a zinc coating, in big red spots that indicate that the steel base is being corroded. The sea and the salty atmosphere are saline media that are highly aggressive to metals, so whatever is close to or directly immersed in this environment will show signs of corrosion if not well protected.

There are different ways to play with kinetics; they could be chemical methods like cathodic protection or galvanization (application of a zinc protective layer on iron) or physical methods like using paint as a physical barrier to prevent the oxygen in water and salt from reaching the surface of the metal. It is estimated that because of this protection, we could be able to reduce losses caused by corrosion by a factor of about 30 percent.

Now, if I have hopefully convinced you how important it is to study corrosion, you will understand why our department – Interface Chemistry and Surface Engineering - is investing so much resource into deeper understanding of this phenomenon. No matter how much has been done already, every study on how corrosion starts and propagates, or how to stop it, brings us a step closer to saving a huge amount of money and reducing waste.

Literature:
1. https://plato.stanford.edu/entries/atomism-ancient/
2. Corrosion Mechanism in Theory and Practice (P. Marcus)

**Want to know more?**

@MohamedBrolosy

# Nature favours Non-sense

by MOHAMED EL BROLOSY

Throughout an organism's life-span, cells accumulate mutations as a result of exposure to DNA damage-inducing agents such as UV radiation or mutagenic chemicals. From an evolutionary perspective, survival depends on how fast organisms can adapt to change. If we think of changes in the genome, the fittest organisms will be those that can compensate for harmful genetic mutations, allowing their vital functions to remain intact. A mutated gene that is not compensated for can lead to life-threatening diseases, such as cystic fibrosis, where patients suffer from devastating build-up of mucus in their lungs.

To understand a specific gene's function, scientists make use of gene targeting technologies to generate mutations in model organisms and investigate the effect of gene loss on the organism. Interestingly, it was observed that many genetically engineered mutant organisms show no obvious observable phenotypic defects. Such observations have resulted in an increased interest in understanding how organisms can adapt to or compensate for mutations, a phenomenon termed 'genetic robustness'.
One of the proposed mechanisms behind genetic robustness is called 'genetic compensation'. This involves increased transcription, i.e., production, of other related genes that can functionally compensate for the mutated gene. Genes code for the production of functional proteins in the cell through an intermediate molecule known as RNA and mutations often lead to production of defective RNAs. These are then removed from the cell by the RNA quality control machinery, through a process called degradation, which involves cleaving the mutant RNA into smaller fragments. The most common of such mutations is called nonsense mutations; these cause the protein-production machinery, the ribosome, to terminate protein production prematurely. Studying genetic compensation in zebrafish and mouse at the Max Planck Institute for Heart and Lung research, we found that only mutations that lead to defective RNAs that are subjected to degradation, such as nonsense mutations, could be compensated for, but other mutations, such as those that do not produce a defective RNA, could not (El-Brolosy et al., Nature, 2019).

As said before, mutations can lead to defective RNA, which is then removed from the cell through degradation. We found that the more defective RNA is removed (i.e., the more degradation of mutant RNA), the more the compensating genes become productive. To investigate how the degradation of mutant RNA might trigger genetic compensation, we used the CRISPR/Cas9 system. We induced mutations in several genes in zebrafish that caused the animal to be unable to produce the mutated gene's defective RNA. Because they cannot produce the defective RNA, there is no degradation of defective mutant RNA and thereby we should not expect to observe a compensatory response. Indeed, we found that such mutant animals did not induce a compensatory response to the mutation. More interestingly, these animals displayed developmental defects that were not observed in other animals with mutations leading to production of defective RNAs. Such defective RNAs in these other animals would be subjected to degradation, and trigger a compensatory response, resulting in the lack of developmental defects. For instance, nonsense mutations (which cause RNA degradation) in the egfl7 gene (which controls proper blood vessel development in zebrafish embryos), do not lead to defects in the vasculature's development (Figure 1), because genetic compensation mechanisms lead to increased production of other related genes that compensate for the defect. However, a zebrafish mutant for the egfl7 gene that do not produce defective RNAs, did not lead to a compensatory response and thereby displayed strong defects in blood vessels development (Figure 1).

Our study has provided evidence for genetic compensation as a gene regulatory mechanism and further increased our understanding of genetic robustness as a whole. Genetic compensation might explain reports of 'resilient' healthy individuals harboring mutations without presenting any phenotypic defects or symptoms (Sulem et al., Nat. genetics, 2015; Lek et al., Nature, 2016). Specifically, some studies report that individuals with genetic mutations that cause mutant RNA degradation (i.e., the removal of defective RNA) to cause milder forms of some genetic diseases, such as Marfan syndrome and Beta-Thalassemia intermedia compared to individuals with mutations not provoking mutant RNA degradation or removal (Dietz et al., Genomics, 1993; Hall and Thein, Blood, 1994). These observations alongside the findings of our study suggests that genetic compensation through mutant defective RNA degradation might be underlying such observations, and further investigation of the phenomenon may help us understand why some mutations cause disease while others do not. It may also lead to the development of more effective therapies for genetic diseases, for example, ones that enhance an individual's robustness to a mutation rather than correct its effect.

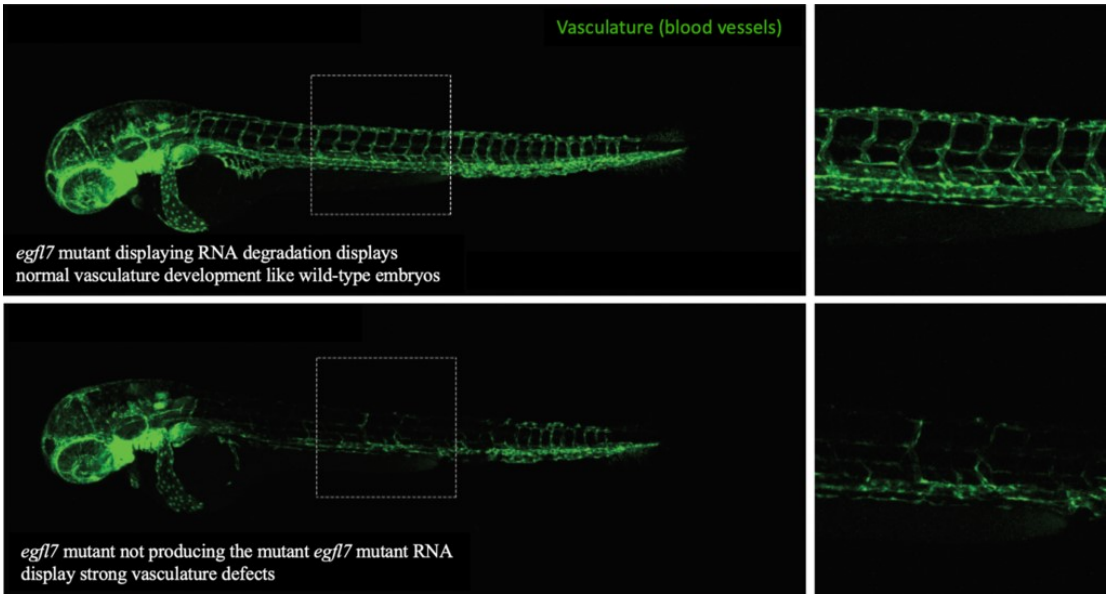



Figure 1: Confocal microscopy images of blood vessels in two different mutant zebrafish larvae for the gene *egfl7*. Photo Credit: Mohamed el Brolosy

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# Meet the Editorial Team

**Maria Eichel** is a doctoral researcher at the Max Planck Institute for experimental Medicine in Göttingen and is in the final year of her doctorate degree. 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 three years ago to contribute to a broader knowledge of career opportunities for young researchers, foster science communication and recently started focusing on sustainability in everyday life & at work. 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 cocktail, wine or walk and binge watch TV series.

**Raed Hmadi** is a doctoral researcher at the Max Planck Institute for Immunobiology and Epigenetics in Freiburg. Raed studied Molecular Cancer Biology at the American University of Beirut, Lebanon. Currently, he is studying the process of gene dosage compensation in model organisms, focusing on the phenomenon of X chromosome inactivation in female mice. Outside the lab, Raed is an avid reader and enjoys baking and traveling.

**Aida Ahmadi** is currently a doctoral researcher at the Max Planck Institute for Astronomy in Heidelberg, in the final year of her doctorate degree. 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.

**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.

**Swati Subramanian** found herself intrigued with the ongoings of the brain and how one aspect, myelination, affects the brain on a functional and behavioral level. And so she is a doctoral researcher at the Max Planck Institute for Experimental Medicine in Göttingen doing just that. She's studying how myelin, the fatty bit of insulation around axons, affects cognitive behavior in mice during development. Lately, she's been fascinated by the dilemma of sharing your scientific work with the general public and so decided to hone these skills by joining the Offspring Team. She's a strong proponent for sustainability and living an environmentally-friendly lifestyle. She's a self-proclaimed expert pet/plant sitter for those who are nearest and dearest to her and loves cooking extremely spicy food for the aforementioned nearest and dearest. Her idea of a relaxing evening consists of either a good book or a compelling TV series.

**Srinath Ramkumar** is a doctoral researcher at the Max Planck Institute for Heart and Lung Research in Bad Nauheim. His primary research goal revolves around understanding the role of Extracellular Matrix proteins in heart development and regeneration. He works under the supervision of Prof. Didier Stainier, a renowned expert in the field of developmental genetics. He studied Chemical Engineering and Biological Sciences in university and his fascination to understand fluid dynamics in the heart valves during regeneration motivated him to apply to work in this lab. He strongly believes that effective communication of scientific research is essential and using any modern means necessary to do so must be adapted quickly and efficiently. Hence, he joined the Offspring team in 2018 with a goal to incorporate informational videos with clear scientific messages that the general public can easily digest. Outside the scientific sphere, he enjoys film and music production. He is a professionally trained singer and violinist of the South Indian tradition of Classical Music called Carnatic Music, and he loves to play badminton and football as long as it is not too rainy outside.

**Vivek Devulapalli** is in the early phase of his doctoral studies at the Max Planck Institute for Iron Research in Dusseldorf. Having an undergraduate background of Material Science, he continued his quest to dig deeper into materials around him and understand how the micro and nano structure of materials can affect their properties. His PhD work revolves around studying the structure of grain boundaries in pure and alloyed Titanium. He spends most of his time looking into tiny things with a high-energy electron microscope in search of something that has not been seen yet. He believes that ability to explain scientific work to people outside your field is an important talent to acquire. He joined Offspring to make science more appealing to the general audience by communicating it effectively. In addition, he is intrigued to see people from different cultures and nationalities coming together for a common cause. Offspring also lets him experience the same from up close. Once out of the lab, he can be seen hiking, playing Keyboard, FIFA or Badminton.

**Merel Wolf** is a 3rd year doctoral researcher at the Max Planck Institute for Psycholinguistics in Nijmegen, the Netherlands. She investigates whether people learn new words and their meanings better when the first encounter with the word is either written or spoken and how this process is affected by adult's and children's reading ability. Since an early age she has enjoyed editing articles and designing layouts for school and student papers. The Offspring provides a space where she can pursue these editorial interests while at the same time reading and learning about many different scientific topics. Outside the office Merel plays classical piano and sings as a mezzo-soprano in a classical choir.

**Doris Hermes** is a 3rd year doctoral researcher at the Max-Planck Institute of Experimental Medicine in Göttingen. In her doctoral thesis, she wants to understand the molecular mechanisms of the neurodegenerative disease Charcot-Marie-Tooth 1A (CMT1A). Clear and easy Science communication as well as an interest in design and layout motivated Doris to join the Offspring team this year. Outside the lab she likes to go running (next halfmarathon is coming!) as well as backpack travelling and cooking.

**Barbara Safaric** is a PhD candidate at the Max Planck Institute of Biochemistry in Munich. In her PhD she is interested in how DNA replication takes place on a single molecule level. Barbara feels really passionate about improving working conditions for PhD students, thus, she is not only participating in the Offspring, but is also involved in the PhDNet Equal Opportunity workgroup. They are actively working on assuring equal rights within MPS for all minority groups, celebrating diversity and promoting mental health. Showing great communicative and organizational skills, she is also involved in the organization of the two PhD conferences: N2 "From Research to Application" and <interact> 2020 "Breaking the Barriers".

**Angel Aguinaldo** is a doctoral researcher at the Max Planck Institute for Foreign and International Criminal Law and a member of the International Max Planck Research School for Comparative Criminal Law in Freiburg, Germany. Her research revolves around international cooperation between and within the European Union and the Association of Southeast Asian Nations, in particular mutual legal assistance in criminal matters. Additionally, she is involved in research about cross-border access, transfer and exchange of online evidence. She was enticed to join the Offspring working group after serving as the social media point person for the PhDnet Steering Group in 2018. She believes in the importance of Offspring as a communication tool of the PhDnet as well as its members, and helps as much as she can in using the benefits of social media such as Instagram and Facebook in promoting the organization and its various projects, as well as highlight certain advocacies. Apart from her doctoral research and job as a lawyer, Angel enjoys crafting, journaling, Crossfit, and playing video games.

**Jun Yong Kim** is in the beginning of 3rd year of his doctoral study at MPI for Biology of Ageing in Cologne. His research aim is to decipher the role of mitochondria in cellular senescence. He studies in Dr. Thomas Langer's lab whose expertise lies in mitochondrial biology. Jun tries to find a link between such a pleiotropic organelle to cellular ageing, particularly focusing on the organelle's proteomic rewiring during the transition to senescence. He has a pharmacy background for his undergraduate study, thus inclined to leverage his knowledge to find a clinical relevance and potential intervention to ameliorate diverse ageing phenotypes due to the senescent cells by targeting mitochondria. During his doctoral study, he realized the importance of science communication which led him to have a keen interest in the editorial process of science. He joined Offspring team from 2019 and dreams to ultimately be an editor in a scientific journal. Other than science, he is a dilettante of classical music, practices to be a team player on the soccer pitch in addition to the lab bench, and breaks down hard the beer to the water in a pub.

**Merle Ücker** came to the Max Planck Institute for Marine Microbiology in Bremen for a master's programme following her childhood dream to be a marine biologist. She is now a third year doctoral researcher in the Department of Symbiosis. Instead of swimming with dolphins, she got friends with the Linux command line and investigates population genomics of deep-sea mussels and the strain diversity of their bacterial symbionts. Through her role as PhD representative, she got to know the Offspring and joined the team to get some editing experience and revive her passion for writing. When not troubleshooting error messages, she enjoys exercising, crafting, cooking, hanging out with friends and family, and just sitting in the sun watching her flowers (not so easy in Bremen).

**Leonie Keller** is a 2nd year PhD student in Biology at the MPI for Heart and Lung Research in Bad Nauheim, where she works in the field of cardiac regeneration. Already in childhood she got fascinated by the living nature, spending the holidays on her grandparents farm and performing first studies by collecting and observing snails, frogs, rabbits and donkeys. When she heard about Offspring, she was immediately full of enthusiasm, as an opportunity to combine her passion for science with her passion for language was exactly what she was looking for. In her free time, she likes to spend time in nature with a preference for beaches, plays cello, cooks and hang out with family and friends.

**IMPRESSUM**
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Doris Hermes, MPI for Experimental Medicine, Göttingen
Swati Subramanian, MPI for Experimental Medicine, Göttingen
Constanze Depp, MPI for Experimental Medicine, Göttingen
**Printing:**
Klartext GmbH, Göttingen

**Cover Image:**
By Swati Subramanian: „I drew this cartoon, first, in a class out of sheer boredom at the age of 14. Back then, terms like 'climate change' and 'global warming' had just come to prominence in my vocabulary. An under-looked foretelling of what was to come. This year, when we set out to write articles for the Environmental Awareness month, I realised just how passionate young researchers are about climate change by the plethora of articles we received from them. So when the question of what our Offspring cover page should be was raised, I remembered this cartoon just like I'd drawn it yesterday. I feel it's a satirical yet foreboding depiction of our carelessness and that we, as a species, need to take stock of what we have done and how to change our ways to protect the only planet, that we know of, that can sustain life."

# #10moredaysvacation

In March this year, the Max Planck Society finally granted every doctoral researcher with a Fördervertrag a total of 30 days of holiday leave. #win.

With summer fast approaching, we want to celebrate these additional days of holiday! We want to know what you will do with your extra 10 days of holiday. The Offspring Team is collecting ideas of members within the PhDnet and will take over the social media channels for the next 3 days. Let us know what you will do with these extra holidays using #10moredaysvacation or share your story and tag us. You have no clue how you want to use your extra days? Stay tuned and check our story highlights! Maybe you can pick an idea or two from us!


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