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offspring

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Dear reader,

our present lifes are shaped by the expectations and hopes we have for the future. With a somewhat clear understanding of what we want to achieve and pursue, we can start thinking about what we want our lifes to be. Particularly science has always been driven by the futuristic visions of those, who wanted to grasp the deeper meaning of processes surrounding all of us. With this 2012 issue of the PhDnet magazine Offspring, we are happy to present a sneak into the future – let the *Futurama* start!

This year's voyage was vanguarded by numerous motivated and active groups, who have worked in close communication with the Max Planck Society general administration to improve the work-life conditions of the Max Planck PhD students and to prepare for the stunning events that are about to wrap up this exciting year (p. 4-14).

Surely, you have taken note of the recent events that have shaped and changed the working conditions of approximately half of the Max Planck PhD students this year – the stipend holders. After the announcement of subsidy grants for health insurances in February, and following an article on Spiegel Online, many newspapers and online news platforms have embarked on a public discussion that examined the usage of stipends and requested an improvement of the financial and insurance aspects of stipend grants within the Max Planck Society (MPS) and beyond (p. 4, 14).

Apart from politics, we have also prepared a set of feature articles which include the aspects of third culture (p.20), the recent conference on future law education (p. 22), and two slightly unorthodox visions on technology (p. 25) and on climate research (p. 28).

We hope, you enjoy reading this year's Futurama-Offspring and look forward to meeting you at one of the upcoming PhDnet meetings.

Yours,

The Editorial Board

Steering Group

Birgit Adam

About nine months have passed since we were handed over the duties and responsibilities of the PhDnet steering group of 2011. At that time, we were absolutely oblivious about the exciting events this year would hold in stock for us! We are a group of two nationalities, German and Iranian, mixed gender and mixed characters. It is save to say that now, after 9 months, we are also an almost symbiotically evolved team of friends and colleagues. We have had enormous amounts of fun and it was and is a great honour serving you!

You might have come across our experiences and meetings with the General Administration, various scientific councils and the works council of the MPS, the German Federal Bureau for Education and Research – maybe through our mailing list, our website, or our social platforms on facebook and maxNet. Here is what we actually accomplished during these meetings, what has happened in result and yes, we will also talk about events that have been started by the PhDnet, fostered by the PhDnet, but which have resulted in drastic and sudden changes due to actions not initiated by us.

One of our major targets this year was an improved informational transparency. We hope to have accomplished this goal by our frequent mailing list updates and news posts on facebook. Whenever we received concerned e-mails from you or your colleagues, we made sure that every single request was answered, either by us or by our considerate administrative advisor from the general headquarters of the MPS, Mrs. Soemer.

We also pursued the coming into effect of the Best Practice Guide, which had been initiated roughly 3 years ago, had been formulated in massive collective efforts and was, at last, approved by the Scientific Council of the MPS in February 2012 (p. 14). We do apologize for not publishing the document yet on our website, but we will give you complete explanations for this decision of ours in due time.

Let's talk about another big topic this year: money.
In addition to the granted subsidy for public health insurances of stipend holders, we were very happy to hear that the MPS now requests local administrations to grant their stipend holders the maximum stipend rate (p. 14). While this positive trend is very welcome, we do realize how the local administrations have to calculate well now. The MPS had announced a raise of 5% to all MPIs, but decided in Spring to lower this raise to 4% this year. It is no surprise that the resulting financial shortage becomes additionally critical because of the stipend raise. We are very concerned that local MPIs have now started to cancel additional subsidies in order to prevent or ease the financial shortcomings. Further, the PhDnet always emphasized the critical aspect of social security for stipend holders, and this problem still persists. From a financial point of view, stipends are now more attractive, but we see that due to the granted maximum rate of stipends, leading more students into socially secured employment situations might become an additionally difficult task for future generations of PhDnet groups.

We believe in collaborating with the MPS to improve the working situations of Max Planck PhD students. However, this year, we have seen that also non-collaborative efforts like the Fair Pay Initiative can improve the working situation of PhD students. Even though we supported the cause of it, we distance ourselves from its actions. Resulting from the initiative, numerous newspapers and online platforms have reported on the situation of stipend holders and their pressure has led to the increase of the minimum rate for all stipend holders. In our eyes, it is also due to the great effort that past years of PhDnet groups have put together to, for example, produce the PhDnet survey 2009, and to stand up for the needs of all PhD students, not only the stipend holders, but also the contract holders, students from abroad, and families. For the remaining months of 2012, we hope to continue being there for everyone, because we believe in the strength of a unified PhDnet.

Thank you and
موفـق باشـــيد

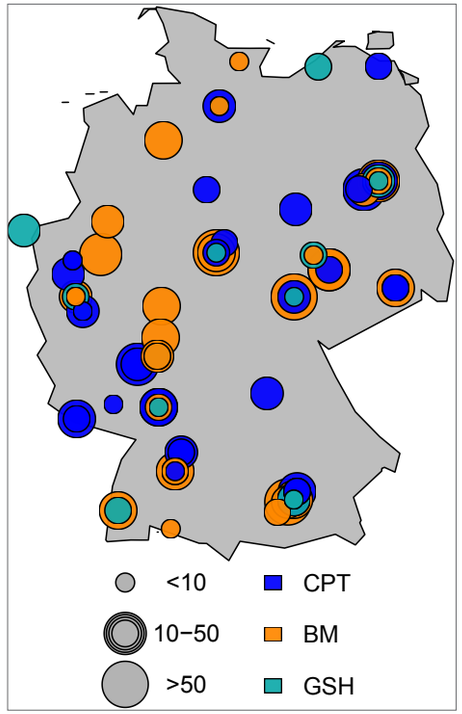
Survey Group

Daniel Herde

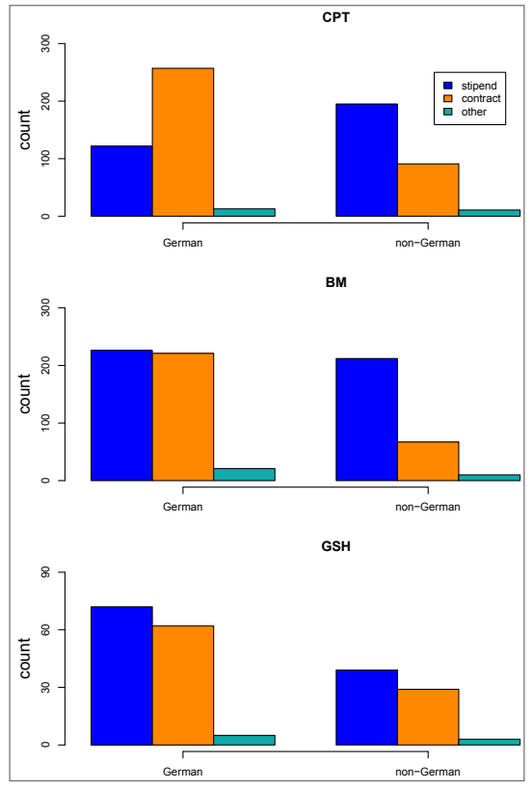
The goal of the PhDnet is to represent the students in Max Planck Society and take care of their issues. This is not an easy task, especially when talking about a few thousand students distributed all over Germany plus a few abroad. One powerful tool to get an overview over the current situation is the survey conducted every few years, the last time in 2009. You might have heard about it, since it received a bit of press coverage recently.

Getting students to participate in such a survey is not an easy task, especially without a way to contact all the PhD students directly. Fortunately, the PhD representatives from the different institutes forwarded the e-mails to their students encouraging them to participate again and again and again. Sorry for the spam. Together with the support of the steering committee that was running a telephone campaign, we finally reached a bit over 1800 responses. Now, I guess you aren't reading this article to hear how annoying it is to sanitize the dataset, nor to learn about the pleasures of layouting - at the time of writing this short article, we didn't even get started on this.

Therefore, let's talk about the content. This year's survey covered most



of the points addressed in 2009, as the contract-stipend issue, the PhD supervision and career outlooks, but with two additional focus points. First of all, we wanted to highlight the issues of work-life-balance or lack thereof. A lot of institutes offer recreational facilities and activities to help their students deal with the workload, as 70% of the participants responded that their institutes offer informal get-togethers and 25% have access to fitness courses through their institutes. On the other hand, having 772 reports of back pain and 402 of depression raises some questions. The second point of interest arises from the inhomogeneity of the Max Planck society. The directors have a lot of freedom in operating their departments, leading to a strong



variation in student supervision, happiness and productivity. We used the survey results to show which institutes can serve as role models for good treatment of PhD students.

If you want to learn more about our results - head over to phdnet.de and get the full survey results from 2009 (and 2012, whenever we are done) there. Let's hope that this year's survey will be a valuable contribution to the discussions on how to improve the working conditions of PhD students in the MPS.

Survey group members:

Daniel Herde

Pablo Sartori

Stefan Siegert

Rosa Gloeckner

Berenike Waubert de Puiseau

Julia Baumert

Seminar Group

Theo Zografou

This year, already many PhD students have decided to make use of the substantial annual budget for soft skill seminars granted by the Max Planck Society. By requesting financial support for their seminars, these students have demonstrated once more, how valuable and welcome this budget is, so: Thank you very much! Our most wanted seminar was 'Project Management' which was carried out at the MPI for Intelligent Systems, the MPI for Solid State Research and the MPI of Psychiatry. Additionally, the students of the MPI for Plasma Physics and the MPI for the Physics of Complex Systems profited from seminars on 'Scientific Writing' and 'Poster Presentation'. And last but not least, I have organized a seminar at my MPI for Plant Breeding Research on 'Career Opportunities and Assessment Center Training'. As you can see, we have a very attractive variety of seminars available, so just contact us, if you feel the need for a soft skill seminar at your institute as well. We will assist you with the application procedure and then you are free to book a trainer, a room, and advertise and enjoy this brilliant event.

Web Group and Secretary Group

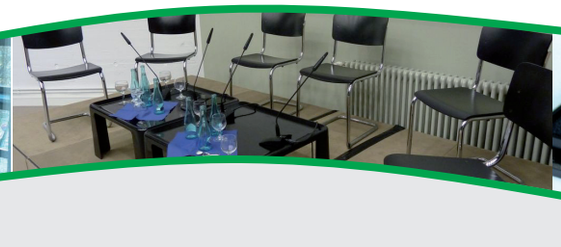
Philipp Edelmann
Janina von Groote

We introduce ourselves as two specimen of type 'theoretical astrophysicist', Janina von Groote and Philipp Edelmann.

We spend our days, among other things, exploding or collapsing stars on the computer or acting as heads of the secretary and web group of PhDnet.

The web group could build on the excellent work done by last year's team, specifically Michael Krüger. The most common task for us surely was to put news items on the web page in a timely fashion. In this respect 2012 was a particularly interesting year as the situation of PhD students got a lot of coverage in the press which, of course, triggered responses by the PhDnet.

The Secretary Group usually acts as the connecting pipeline between the steering group and the other working groups.



Interdisciplinary Event

Stefan Thiele

The first VISIONS IN SCIENCE Conference will be soon! From September 26th to 28th we would like to welcome you at the MPI for Marine Microbiology to our interdisciplinary conference on "VISIONS IN SCIENCE". This year, six world-leading researchers across a variety of scientific disciplines will give exceptional talks on their visions in their field of research and beyond. We are happy to announce the participation of Stephan Götzinger (Nano optics, MPI for Science of Light), Henrik Jensen (Complex systems, Imperial College, London), Benjamin Kaupp (Molecular sensory systems, CESAR, Bonn), Nikos Logothetis (Neuroscience, MPI for Biological Cybernetics; Tübingen), Rupak Majumbar (Computer science, MPI for Software Systems, Saarbrücken) and Ulrich Witt (Economics, MPI for Economics, Jena). The talks of these great personalities will be followed by extended discussion times, so that all your questions will be heard and answered. Additionally we will offer discussion groups with one or more speaker to discuss your questions in more detail in smaller groups. Still not convinced? We will also have a Mixer and a conference dinner, where you can meet the speakers, but also get together with many PhD students from all different disciplines represented in the MPG. Additional information can be found on the homepage:

www.visions-in-science.org

See you in Bremen.

Your Event Team
Stefan Thiele (MPI MM, Bremen)
Andreas Krupke (MPI MM, Bremen)
Esther Kühn (MPI CBS, Leipzig)
Jan Jikeli (Caesar, Bonn)
Juhi Kulshrestha (MPI SWS, Saarbrücken)
Philipp Fleig (MPI GP, Potsdam)

General Meeting

Ole Herud

After some months of organizing and planning, rescheduling and re-rescheduling, we are happy to announce that

the annual PhDnet meeting

will be held

from the **25th** until the **27th of October 2012**

in **Tübingen**

(*just like you have probably noted it down in your calendars in February already*).

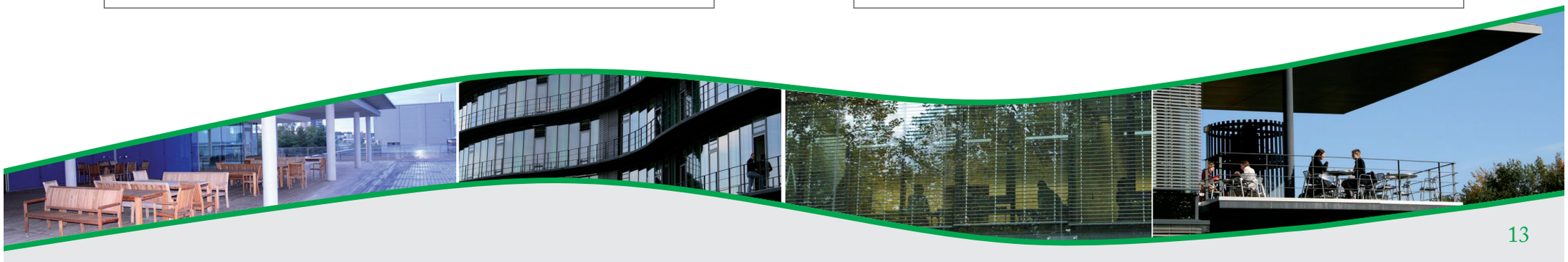
Vice-President Prof. Herbert Jäckle will talk to us about the recent political changes and improvements for stipend holders on Saturday the 27th of October.

But apart from that we have a whole list of interesting scientists and politicians to invite and we promise to have an awesome line-up. We hope to cover all recent developments, talk about the outcome of the PhDnet survey and have scientific talks and open floor discussions as well.

The accomondation of the first 80 registered representatives will be organized and payed by us.

This bonus only applies to representatives who are listed on our Wiki-List. If you are a local PhD representative and would like to become part of this list, please contact our secretary group (**phd-sec@gwdg.de**).

We look forward to welcoming you in Tübingen! Please watch out for our official invitation and the registration start at the beginning of September.



2012 – A Year of Changes

The Steering Group

Since its foundation in 2002, the PhDnet's goal has always been the improvement of the daily life of Max Planck PhD students. In direct consequence to this target, the President of the MPS, Prof. Gruss, has requested the formulation of a guidelines document that specifically clarifies the needs of the over 6000 Max Planck PhD students – the Best Practice Guide (BPG) was born. The PhDnet groups of 2010 – 2012 have therefore thrived to not only formulate such a document, but also to achieve a widespread acceptance of the same amongst the MPS directors.

At the general meeting of 2011, over 60 present PhD representatives have helped to pass a PhDnet's version of the BPG. This version was handed over to the intersectional council of the MPS, consisting of four MPS directors. In close communication with them, the outgoing steering group of 2011 and the newly elected steering group of 2012 has negotiated and planned the coming into effect of the BPG, understanding that a document approved by MPS directors will have bigger chances of being applied in the daily institutes' business.

Since the PhDnet's version of the BPG was quite specific, e.g. regarding the thesis advisory committee (TAC) and the financial aspects, the intersectional committee has expressed their concerns that the BPG might not be applicable to all institutes and therefore some formulations were generalized in favor of finding a mutual agreement that would suit all Max Planck doctoral candidates.

While BPG negotiations are still on their way, students have started to take actions themselves, which have led to the known increase of stipend levels: a major demand of the PhDnet's version of the BPG.

In the subsequent circular (No. 39/2012), the general administration announced not only the raise to a minimum of 1365 € for every stipend holder, but also substantially stricter rules for granting stipends. Since the often-cited PhDnet survey of 2009 showed the equality of stipends to contracts in terms of PhD-irrelevant work load, the rules are much clearer to avoid such. For example, supervisors have to give detailed reasoning on why a stipend is granted to a PhD student. Also, institutes are stringently bound to making sure that the stipend holder is not subject to directives and the daily institutes business (e.g. does not have to apply for holidays, hand in sick leaves) and does not have to take care of lectures and students. Additionally, stipend holders are not bound to participate in conferences, events and scientific advisory meetings – unless done voluntarily.

At the same time, the general adminstration clearly states that students are eligible to be employed through a contract, if they are responsible for the presentation of their work during scientific advisory meetings and conferences or if they have to supervise student research assistants. Additionally, all known rules for contract holders apply, e.g. fixed working hours at the institutes, responsibilities for lectures or other institute-relevant duties, like driving the institute's cars.

All of these rules are to be applied by the local administrations starting with the 1. July 2012. Additionally, the MPS clearly pointed out that the compliance to these rules and any misconduct in this regard will be investigated during annual revisions of the local administrations. We therefore kindly advise all stipend holders to remind your supervisors and local administrations of these rules, and contact us if you need help.

Although there might still be some stormy weather ahead, the sky seems to have gotten a little brighter this year and we would like to thank all, who have contributed their time and work to improve the Max Planck PhD students' situations.

Who should come to your Defense and Why?

Raphael Cahen

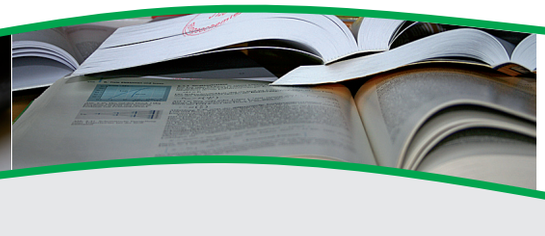
In a few months, I will present the result of my years of doctoral research on which I have worked in archives in London, Paris, Stockholm, Moscow, and so on. The defense will take place in Aix-en-Provence, and my defense committee will be composed at least of six professors. Half of the professors will be French and the other half German; some of them are jurists, while others are philosophers or historians.

As a French Ph.D. student in the field of *History of Political Ideas and Institutions,* I can say without a doubt that the day I defend my thesis will be one of the most important days of my entire life. I often dream about this day and the committee of those old professors, some of them (the jurists) dressed like judges, who are going to evaluate my work over five hours with my 500-page thesis in front of them marked up with red comments and critics. I am also having surrealistic nightmares for which a perfect knowledge of Freud's dream theory would be necessary to interpret, when the stress of not being good enough for the "Big Day" is growing.

Sometimes, I also think of how it would be if my great-grandfather, the so called "vizier," would be in that committee. I feel very close to that family member whom I have never met ever since my father gave me a drawing depicting my great-grandfather by Oscar Fabres (1894-1960), a famous Chilean Illustrator who lived in Paris. In the drawing, my great-grandfather is very well-dressed and holds a magnifying glass. Papers fall out of his suitcases as he searches for Stendhal, who seems in the drawing to be so big and aristocratic. My father gave it to me because, like my great-grandfather, I already have spent a significant part of my life exploring the life and the works of a man who his now partially forgotten: Friedrich von Gentz (1764-1832).

Henri Martineau (1882-1958), my great-grand father, who began composing poetry when he was 15 years old, became a librarian and the most famous Stendhal (1783-1842) researcher after first pursuing a career as a family doctor in a western region of France. While presenting his doctoral thesis in medicine on the topic "The scientific novel of Emile Zola: the Medicine and the Rougon-Macquart" in 1907, he also offered the second volume of his poems to the defense committee. Should I offer my defense committee a few haiku and poems I have written, as well?

How would the "vizier" (his mistress gave him that nickname because the name of his revue was *Le Divan,* from the Arabic *diwan,* which means "the oriental council of state") judge my work? Would he come to my defense dressed up as a vizier with a Turkish turban sitting next to his mistress? Would they be two ghosts coming from the *belle époque* exactly like in the film *Midnight in Paris*? Maybe if I can picture that image during my defense, I will not be so intimidated by the committee, and after five hours of defense they will not only give me their academic blessing, but also address me as "the Sultan." For certain, that would be more a dream come true than a nightmare.



Mentors support female scientists in planning their next career steps

Anke Hübenthal

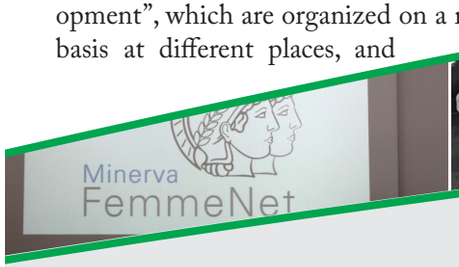
According to the Max Planck Society's annual report, the percentage of women among MPS directors and scientific members was 8.7 in 2011, whereas about 40 per cent of the doctoral students were female. Even if one takes into account that two or three decades ago there might have been fewer female students than there are today, female researchers seem to disappear on the way to the top level positions. This phenomenon is called "leaky pipeline" and is not restricted to the MPS, but can be observed at universities and other non-university research organizations as well.

One of the aims of Minerva-FemmeNet, the official mentoring program of the MPS, is to counteract the leaky pipeline phenomenon (amongst others) and gradually increase the percentage of women in top level positions in science. Therefore, the program provides all interested female scientists of the MPS with role models (mentors) and the chance to benefit from their experiences to better plan their next career steps. In addition to that, members of the program can also attend training sessions on topics like "Research Funding & Career Development", which are organized on a regular basis at different places, and meet with each other at so called "Stammtisch" meetings that are currently taking place in Berlin, Heidelberg, Freiburg, the Rhine Main and the greater Leipzig areas, and soon in Munich as well.

About 250 mentors who are working in academia, science-related fields and industry have volunteered to mentor younger female scientists. Many of them can not only pass on job-related experiences but also their knowledge on how to combine family and profession.

Minerva-FemmeNet is not a part of the PhDnet in particular but of the MPS in general, and it is open to all female scientists of the MPS, from graduate student to (junior) professor. Although the main focus of the program is on academia, it is also open to female scientists who are interested in a career in a science-related area, in e.g. industry or administration.

Everyone who is interested in additional information, please have a look at www.minerva-femmenet.mpg.de or send a message to the program's coordinator, Anke Hübenthal (huebenthal@rg.mpg.de).



Girls Day - Generation Y day

Birgit Adam

Roughly 10 years ago, I thought it was so cool to have a special day just for us girls to visit technical and engineering companies. During those days, I excitedly paced through the floors of many silicon chip factories in Dresden and peaked into the dust-free cleanrooms where the alien-like personell, wrapped in layers of white coats and caps, handled shiny disks of monocrystalline silicon wafers. They seemed to be ultrarelaxed after finishing their shifts, spent additional time in the cafeterias, all dressed in green sweatshorts and white shirts. We could ask our loads of questions and were told how family-friendly the company is, having their own international kindergarden just down the hall. It has been consoling to hear that Girl's Day has later evolved into an Equal Opportunities Day, leaving it up to every student to pursue their interests, become excited about a profession and at the same time learn about the offerings of the companies to enhance their employees' quality of life. What I understood was that during the hunt for the best trained staff, any company has got to throw in more than a paycheck. The reason is simple: in the light of the demographic change, the early motivation and acquision of future employees should be of utmost importance to employers. Though clouded by uncertainty, our generation is filled with assertiveness, creativity and flexibility. We know our rights and our market value and hence, we are free to increasingly emphasize the necessary balance of our work with our life. It is no surprise that employees work more efficiently and motivated, if they have a voice to design their work task while supporting their personal development by e.g. sports courses and sabbaticals. In my eyes, a mature employee who knows the facts of life and speaks openly, may be more inconvienent at the first glance, but will add a great deal of progress to any company on the long run. I therefore hope that future generations will profit from the flourishing self-confidence and work-life-balance of our tentatively called 'generation y'. And hopefully we will also find a more appropriate wording for us, too.

Third culture?

Matteo Allegretti

"I cannot follow the progress in my discipline any more !"

This sentence can be shared by many scientists, in fact nowadays the accumulation of knowledge in every field has become very fast and the possibility to slow this progress down is actually unthinkable. Nevertheless, at the origins philosophy, art, and science proceeded hand in hand and a distinction among them was not even known by scholars like Leonardo, Galileo, Goethe, Einstein. Until 1700, an artist was also a scientist and scientific studies and creative vision were at that time intimately correlated. Today, however, everything is changed and the passion of a scientist is not more than well manifested inside the cold, standardized style of a publication. Still, however, the discovery is one of the strongest emotional experiences of a scholar's entire life and it comes from the same inner tension and fascination for nature that was inside the artist some centuries ago.

In fact, each scientific work tells a story, sometimes boring, fascinating or original and not everybody knows how much effort is behind this and how often the work environment and the daily life context are relevant in the pathway towards a novel idea of a scientist. Charles Percy Snow in 1959 coined the term "third culture" for the first time, imaging a fusion concept to solve the so deep divergence that modern society was creating between the human and the scientific culture. Later in the 80ies, the editor John Brockmann used again the same term to express his idea of a scientist who was able to communicate directly with a vast public without any intermediation.

But how could the third culture be defined today and why can this concept be important both for a natural scientist and for any other human being? Let's try to give some answers: Third culture is a creative, constructive dialogue among different disciplines. Third culture is a positive contamination that can help in arising new ideas thanks to a variety of multiple approaches. Third culture goes beyond the problem of language barriers. Third culture is thinking bridges and finding relations. Third culture is reciprocal enrichment. Third culture are two scientists, one from Iran, the other from USA, who exchange scientific data freely even if they have diverse points of view about religion, ethics, music… Third culture is continuous dialectics, an open and free debate to face complex problems. Third culture is like a regenerative shower after a day in the lab. Third culture is to remember that the word culture comes from the Latin "colere", so cultivates and spreads knowledge every day. Third culture is dealing with scientific issues and scholar biographies in theatre or at festivals. Third culture is a dynamic dance among the different sectors that society created. The PhDnet and its groups are third culture.

Third culture means understanding that reality is so beautifully interconnected and its apparent borders are osmotic. Third culture means understanding that every phenomenon can be observed with different eyes and that too rigid academic barriers are not useful because the solution is often at the "edge of nobody" between two different sectors. Third culture means understanding that intelligence without emotion is not intelligent. Third culture means understanding that the new generation of scientists must cultivate an ethical sensibility, as well as sustainability in the use of natural sources. Third culture means understanding that there is as beautiful humanity in a page of Mozart as in a page of Einstein, because they both give us a key to perceiving the world. Third culture means understanding that we are living a very delicate moment from an economic, environmental, alimentary, energetic point of view which asks urgently for integrative and systemic perspectives, not sciences closed in themselves. Third culture means understanding that culture is only one.

Ref. "Terza cultura", Vittorio Lingiardi and Nicla Vassallo (il Saggiatore 2011)

On the Future of Legal Education

Gesine Güldemund
Ulrike Schillinger

"Jurisprudence: science or craft? Education of legal professionals in permanent crisis" was the title of the summer conference 2012 of the IMPRS for comparative legal history.

Traditionally, the PhD-students organize a summer conference once a year, preparing a topic of their choice. This year the decision was taken to discuss the future of German legal education – a topic which has been a source of ongoing discussion, probably since the beginning of legal education itself. On the occasion of the Bologna Process this debate recently once again has attracted the attention of the legal community. The intention for choosing this topic was on one hand to contribute a specific legal historical perspective, especially considering the history of the reform debate. On the other hand, the IMPRS conference with its prevalently quite young participants was a suitable frame to constitute the students' point of view. The conference, taking place at Herborn Castle on July 8th and 9th 2012, was divided into three consecutive blocks: The history, the present state and the future of German legal education.

During the first part of the conference it was particularly discussed, whether the legal education actually was in a crisis – possibly even a permanent crisis, as some people suggest. In our (the organisers') opinion, the conference revealed that the debate concerning legal education did not remain static with the same improvements constantly being unsuccessfully suggested by the same people. In the 1970s, for example, primarily law teachers and students claimed a reform to secure the education of politically more sensitive jurists, whereas today's efforts – to achieve a more economic education – are mainly made by the advocacy and economy in general.

The job profiles of former law students show an exceptional variety: the work of a legal academic differs significantly from the one of a practical jurist, as does the work of different kinds of practical jurists (e.g. judges, advocates, administration lawyers, house counsel), since the German legal education is based on the principle of the "Einheitsjurist" (general jurist). If this principle is to be maintained – and at the conference the model in general was supported – , different images and ideals with regard to legal education have to be adjusted. The discussion arising from these images and ideals is inherent in the educational system and does not have to be the symptom of a crisis. The debate rather offers a platform for both science and practice to exchange views, to yield their respective concepts of jurisprudence and to jointly develop legal education. Thus there can be talk of a permanent discussion about legal education. A resulting permanent crisis can however not be suggested.

On the second day of the conference, a penal debate on the presence and future of German legal education with representatives of the advocacy, the judiciary, the student body and the federal bar association was arranged. The discussion focused on the present reform debate about the implementation of the Bologna model (various different suggestions exist on how to put the model into effect). The current German legal education consists of a more theoretical part at university (standard period of study of 9 semesters), which ends with the "Erste Juristische Prüfung" and a more practical part (different training stages e.g. at a court, in a law firm, in administration etc. within two years) completed with the "Zweites Staatsexamen".

In the penal debate, the representative of the federal bar association and a lawyer of an international law firm favoured the realization of the Bologna Process. In addition, they claimed further alterations of legal studies such as e.g. reducing the duration of study, changing the subject matter, emphasizing the economic element and making the state examinations non-compulsory. They stated that adhering to the present system would be like living in an ivory tow-

er and not seeing the inevitableness of progress. One should rather actively participate in accomplishing the transition than being superseded by events.

This point of view was met by vigorous protest of the professors and the students on the podium and in the auditorium. Not only did they fear the unnecessary agitation accompanying the implementation of the Bologna model, but they also did indicate, that the last study reform of 2002, with the aim of strengthening scientific legal education at university and ensuring an early practical perspective, had not yet been entirely realised. Particularly the professors wanted to give the current model sufficient time to develop before introducing a next one. Eventually it was claimed, that reducing the duration of study and stressing the economic alignment of legal education far too much could possibly hinder a jurist's ability to reflect and to critically approach law. In view of a jurist's considerable responsibility for society, one ought to make an effort to avoid a by far too lopsided legal education.

The legal historical perspective of the conference showed that a permanent discussion is essential – not because of an existing (permanent) crisis, but to avoid a future one. In this discussion, the different images and ideals in view of legal education, as a result of the large variety of legal professions, have to be adjusted. The vivid debates indicated a general willingness to face the issue. One may be curious about the alterations these discussions may lead to.

A Jump into the Future

Matteo Allegretti

If you think about human life 100 years ago and now, you can definitely observe amazing changes thanks to scientific discoveries and technological applications, however "what will the future reserve to us?". This is nowadays the exciting question. Let's try to make some predictions.

Everyone could probably have his/her own genome sequenced and stored, not bad as personal information, isn't it? This means, for instance, that I could have a drug ad hoc for myself. Moreover, are we going to be able to re-program and re-boot cells and tissues? If the answer is yes, medicine will have a Copernican revolution and aging and a lot of diseases will easily vanish.

Imagine, if cancer, malaria, HIV, tuberculosis and other illnesses which affect millions of people on the Earth are going to be defeated, then that probably means that human beings will extend their life span to more than 110 years…mumble…110 times the population of our planet? How will we face this issue? Lab produced food could certainly be a solution, in vitro meat for instance is becoming technologically feasible and maybe soon we could make safe, nutritious, morally and environmental defensible food, transforming our economy and even our relationship with animals radically.

Let's go on, are we going to understand how to induce happiness, compassion, cooperation and how to treat mental diseases? Painless brain stimulation could be another great advance starting to use robotic replacements as ways of expanding our sensory and computing capabilities through implantation of microcircuits in the brain. Let's even think if everyone could wear devices which suppress bad brain patterns like murdering or raping. This would be amazing!

Besides mind reading technology, it could also be possible in the near future to get a better understanding of how we know and this will allow us to go deeply in the true nature of our human essence. Because, civilization and culture is owed only to our impressive ability to acquire and create knowledge, isn't it?



I don't want to forget to mention artificial intelligence: intelligent houses, robots with or without biological components with which people could spend time with… exactly like friends, teachers, therapists, or caretakers for the elderly like a living pet.

New architectures for new sustainable cities with new materials and new means of transport, of recycling and of garbage dispose. Is there maybe going to be an era where airplanes will have a low environmental impact and where there will be the possibility to produce, store and use hydrogen with ease? Why not? It could be a novel era where we also get energy from nuclear fusion and where we may be able to deal with global warming in a safe way, using geoengineering.

We have then to be careful and invest in spatial and astrobiology research. We all know that we risk our extinction as human beings due to spatial impact or calamity, or that we can easily self-destruct ourselves in a nuclear or bacteriological war. The only safe way for us to survive on the long run would be to spread beyond the Earth and colonize the Galaxy with ultra-fast spaceships. There is a large number of habitable planets within our horizon, but we know that evolution of life and intelligence required some extremely improbable events.

Speculative estimates suggest that the probability to find intelligent aliens is very low but if we will, by chance, find extra-terrestrial life, this would be extraordinary, wouldn't it? In the mean time, the new age of synthetic biology has already begun and is trying to engineer an alternative biochemistry and generate new software of life to direct organisms to perform needed processes like create renewable bio-fuels, food, drugs...

I would like to also emphasize that disclosing the secrets of the dark energy, that causes the universe's accelerated expansion against the gravitation, and identifying dark matter particles that keep together galaxies' clusters would tell us really a lot about our universe. These evidences, together with the recent discovery of the Higgs boson and with a unified theory of quantum gravity, will allow us to draw a complete history of everything we see in our horizon.

Sciences of complex systems are emergent fields that will have to face huge, cross-field problems and we are probably going towards a direction where we will need to link our billions of computer (maybe quantum computers) and brains to use them as a collective mind for tremendous calculations to take over relevant decisions and issues.

In addition, communication, energy transmission and storing will be even faster in the near future, and it would become incredibly important to have a worldwide wireless Internet access with all knowledge available for everyone. In fact, of the six billion people on our planet, unfortunately at least four billions are not participating in the knowledge revolution and hundreds of millions are illiterate, have no medical care and have never used a cellular.

At the end, what really every human being would hope for the future is to have a world with more peace and less inequalities and where all of science, art and culture is shared in every corner of the Earth.

Sabrina Niebling
Birgit Adam

Climate Research – the Atmosphere and the Oceans

Atmosphere

Having in mind the total history of our planet Earth, which was formed approximately 4.6 billion years ago, mankind exists just a glimpse long. In its early stage of development, it was unthinkable that life as we know it nowadays could exist. The atmosphere of the earth consisted mainly of hydrogen and helium. Then, cyanobacteria started to produce oxygen 2.3 billion years ago, causing an enrichment of O_2 in the atmosphere, and life on land could start to develop. From no O_2 at all, the concentration increased and peaked at around 35 percent around 300 million years ago. Nowdays the concentration is 20,9 percent.

This shows quite impressively how much the atmosphere of our planet has changed. Compared to these tremendous developments of the atmopshere, the recent changes in concentrations of greenhouse gases seem somehow small. But unfortunately it's like very often in life: Small changes can have very big consequences. The three most important greenhouse gases to be mentioned are carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (NH_4). They are called greenhouse gases because, just like the glass of a real greenhouse, they cause a warming of the atmosphere. They absorb the infrared radation coming from the earth and emit this energy to the atmosphere. Without this characteristic of naturally occurring amounts of greenhouse gases like water vapour, carbon dioxide and methane, the average temperature on Earth would be minus 18°C instead of 14°C. Since the beginning of the industrial revolution in the 1750s, humans began to continuously increase the amount of greenhouses gases in the atmosphere by fossil fuel burning, agriculture and change in land-use. In only 250 years, the concentration of the most important anthropogenic greenhouse gas, carbon dioxide, has risen from its preindustrial value of about 280 parts per million (ppm) molecules to 391 ppm, which is an increase by 40 percent.

Since some of the processes that remove CO_2 from the atmosphere are very slow, the concentration of atmospheric CO_2 will increase in the long term, even if all emmissions are considerably reduced from actual values. In its Fourth Assessment Report on Climate Change which was published in 2007, the International Panal on Climate Change (IPCC) says: „Even if the concentrations of all greenhouse gases and aerosols had been kept constant at year 2000 levels, a further warming of about 0.1°C per decade would be expected." [IPCC (2007)].

It is obvious that we will have to deal with the consequences of the global warming caused by greenhouse gases in the future. It is also obvious that all countries need to work together and aim for the same goals. Unfortunately, most suggestions discussed by the politians are too much driven by individual economic interests of single countries and the pledges made at the last United Nations Climate Change Conference in Durban in 2011 are too vague and not binding enough.

Refercence: IPCC: Summary for Policymakers. In: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the IPCC [Solomon et al., 2007]

Oceans

The oceans cover roughly 70% of the globe and their inhabitants are not only active on the surface, but also in the deep sea. Since bacteria outnumber any eukaryotic lifeforms by several orders of magnitude, their lifestyles and metabolisms have received increased attention over the past decades. The activity of the highly abundant mircoorganisms largely controls global processes and is therefore considered of great importance, when studying for example the increased concentrations of greenhouse gases, such as CO_2, in the atmosphere. The CO_2 concentrations of the oceans are mainly influenced by two factors. First, the oceanic production by respiring, heterotrophic organisms and the consequent uptake of carbon dioxide by autotrophic, e.g. photosynthetic, organisms. The second factor is the dissolution of atmospheric, gaseous carbon dioxide in the oceans. With increasing atmospheric carbon dioxide concentrations, more and more of it will dissolve in the oceans and lead to drastic changes, of which

the first change is a drop in pH – a resulting acidification. Many organisms react tremendously to acidified environments, among them are the important CO_2-sequestering organisms -- the corals.

Though immediate effects like coral senescence has already been recorded, one has to take into account that the atmospheric increase and consequent dissolution of carbon dioxide in the oceans is expected over a long-term period. But no worries! Mankind is already working on a very short-term option to dissolve more carbon dioxide in the ocean in a shorter time. Since CO_2 is, next to methane and nitrous oxide, a potent greenhouse gas, recent studies have examined the possibility of sequestering additional carbon dioxide into the deep ocean. The CO_2-emitting power plants would be connected with the oceans through a pipeline, which actively pumps the gas into the deep sea. The high water pressure would then lead to an instant solubilization of the CO_2 in the water and the gas would be banned from the atmosphere forever. What a sustainable idea! Really? Researchers all over the world study the effects of this very sudden and drastic change of pH, if systematic carbon dioxide sequestration in the oceans would be a daily occurrence. Current results show evidence for shifts in species abundance and decreased richness. While many species would not be able to tolerate sudden acidification, others could be able to enhance their metabolic activity and succeed. To study this effect on longer time scales, scientists have come up with a broad range of *in-situ* measurement techniques. These are employed at sites of natural CO_2 maxima, mostly close to volcanoes on the sea floor, where the hot extruding gases quickly dissolve in the water and give rise to the most bizarre acidic habitats. Scientists from all over the world constantly work on these deep sea sites, with the help of landers and robots. In the future, they aim to deploy more *in-situ* networks in the oceans, to get a global overview on long term effects of habitat composition in highly acidic habitats. One thing is for sure: it would be much better to treat the cause of the carbon dioxide emission, than trying to 'hide' these masses of highly acidic waters in the oceans. By the way, did we already mention that there are seismic activities down there? Hmmm, we wonder what that could lead to...

An Italian PhD in a Max Planck…

Matteo Allegretti

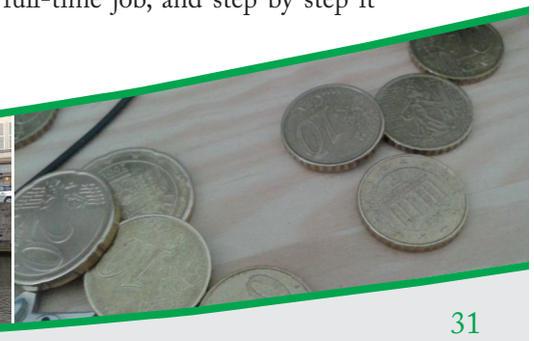
The MPS is a quite international organization with PhD students coming from all over the world. In this article, as in every issue of Offspring, an MPS-PhD student from a foreign country is writing about his experiences in Germany. If you are such a student yourself, or if you are German student spending some time abroad, feel free to write us (in less than 500 words) about your encounters - funny, scary, strange, interesting...or just different from what you expected! We will be happy to publish them in one of the next issues!

Let's look for a PhD position, I said to myself around 2 years ago after finishing my Master degree in Rome. But where to go? First of all, I definitely wanted to have an independent life and an international experience; second, not out of Europe, I didn't want a complete detachment from my home-country; third, not in the United Kingdom, I didn't rate my English to be so perfect and clean.

My first choice? Germany! Yes, the scientific and the philosophical tradition is amazing, so why not try? I wanted to make basic research in an excellent scientific environment, therefore Max Planck was an obligatory choice to test.

I applied for two positions and in two and a half hours I was invited for an interview, all paid, not a bad start, I thought. All my expectations were then fulfilled: a nice city with wonderful connections, low rents in comparison to Rome, high-quality science and (really important!) people. How could I say no, when the director called me after two days of the interview?

So the experience started! I soon realized that PhD was a hard life, the Institute was not closing at 19.30, on Sundays, and on two weeks in August as in my former university. In addition, reports, pressures and some working weekends – this was my new full-time job, and step by step it



was becoming an integrant part of my life.

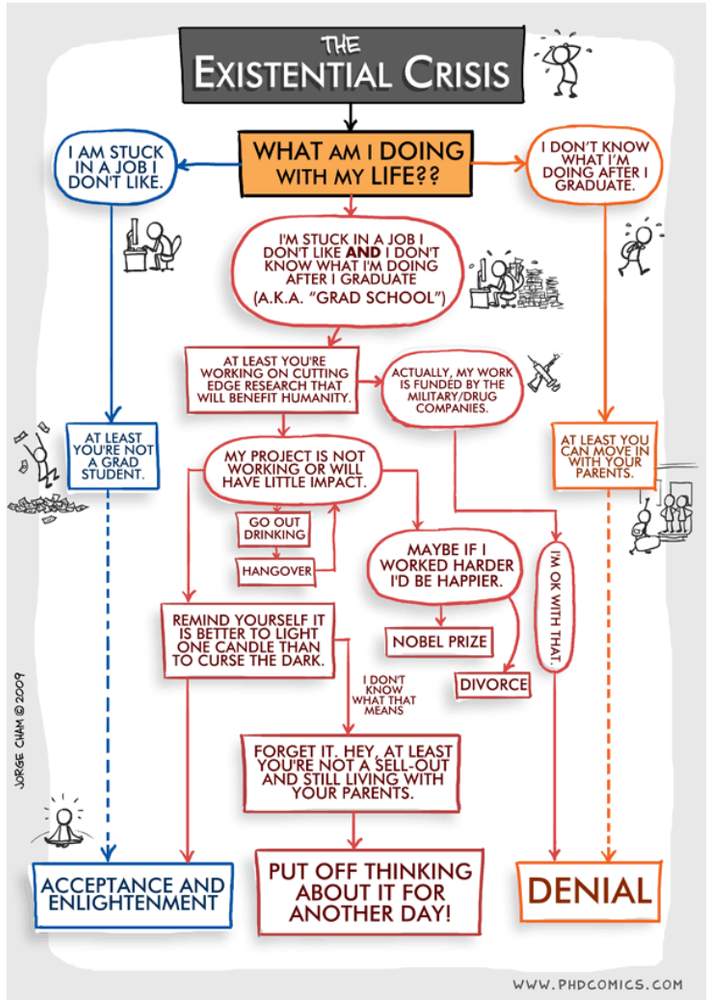
Regrets? No, definitely not. I now have new, great, international friends, a very good supervision and all the economical support to go on retreats, go to conferences around the world and even to enjoy the Institute not only as a workplace.

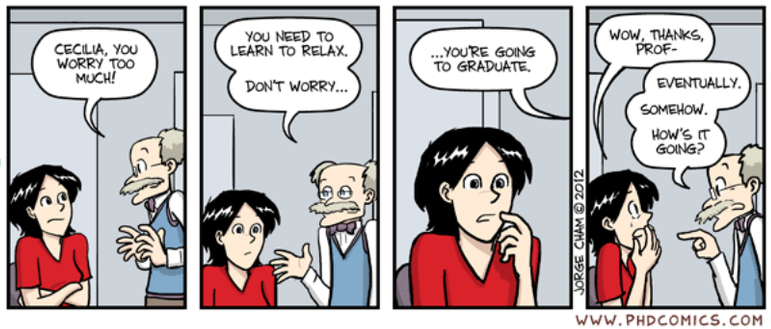
Naturally, accepting such a position also meant for me to take the challenge of a competitive project, as usual in a Max Planck Institute. It was easy to realize already in the first year that if I managed 'by chance' to get the desired title before my name 'in few years', I would be definitely ready to face every obstacle life is going to reserve to me.

Complains? No. Well, to be honest, maybe the pizza is not that great and I should add that my life as vegetarian is harder than expected; in addition the sun is not warm enough and unfortunately the sea is far; moreover the language is hard and I could use a bit more free time, but after all, this was a part of the football match I accepted to play at the beginning. I should be already pleased not to be crushed like a sardine in the morning train and that there is no traffic and polluted air around; besides, the beer is tasty and I don't have to save the tips in the lab and clean the glass bottles… all this is great, isn't it?

And about the future? If I get through my defense with or without amazing results, it will actually not matter, because, in principle, I will definitely find a well-paid job afterwards everywhere (except in Italy).

At the moment, however, my only concern is to get the best from this exciting life experience, which I chose for my life and never thought to go back.





The Offspring Team at Work

Birgit Adam

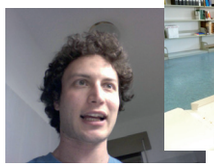
Though I usually row through the Baltic Sea to collect my cyanobacterial samples, this year, I also row through the waters of the PhDnet being a member of both the Steering and the Offspring Group. It has not only been the most exciting year of my time as a PhD student, but has also provided an interesting new perspective on student and science politics.

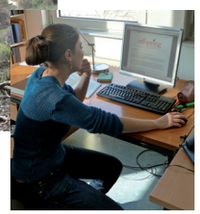
Sabrina Niebling

Normally I spend most of my working time measuring greenhouse gases in the atmosphere using spectroscopic techniques. This work includes exciting field trips to remote places but also a lot of data evaluation in front on the PC. For a change I decided to join the Offspring group and enjoyed an interesting time. I hope you enjoy reading the Offspring as much as we did preparing it.

Matteo Allegretti

PhD life needs also some escape routes. The fun in being part of the Offspring editorial board is one of them. Enjoy the issue and if you like it, be active and collaborate for the next one!





Gesine Gueldemund

Participating in the Offspring group is a tradition for the Frankfurt jurists and this year I am happy to fill in this position, where I am not so much responsible for legal advice but rather wanted to profit from all the fun and experience.

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