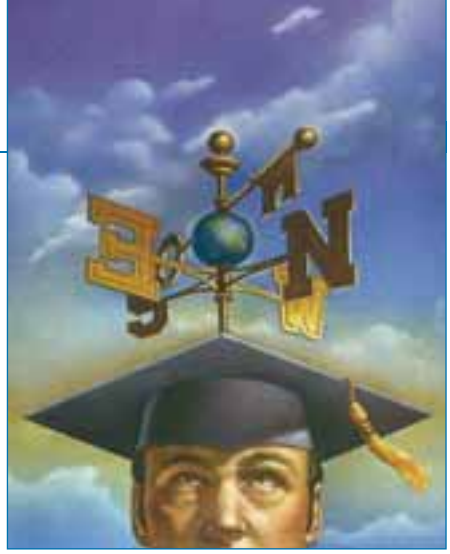
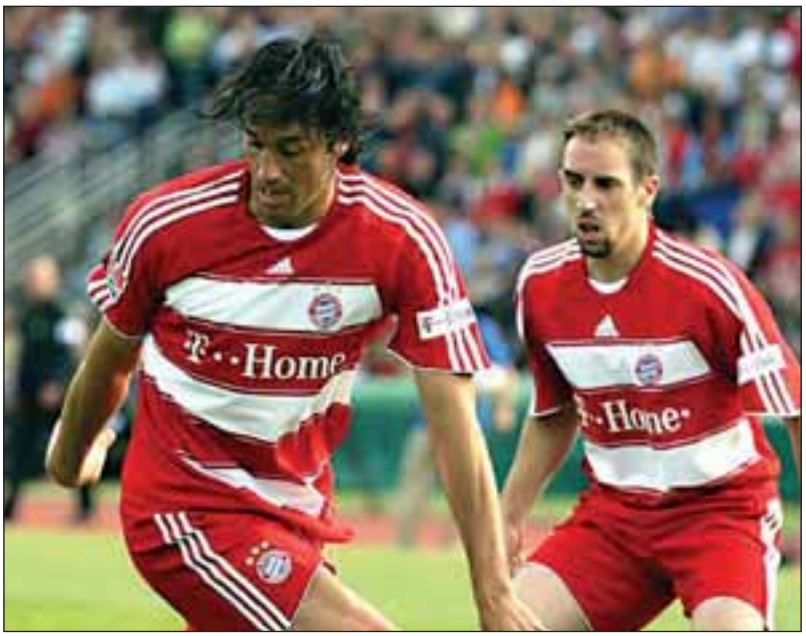


Career strategies for young European scientists (VIII)

German Money

With this article we start the presentation of national junior group programmes that anyone from Europe can apply for. The first contribution subsumes the possibilities of getting German money to set up a research group in Germany.

Do you want to set up your own junior research group in Germany but you're not German? Don't worry! Internationalization is *en vogue* in German research funding and there is plenty of opportunity out there for those in the know. Most of the major national funding organizations and research institutions offer group leader positions, which are open to young talent of all nations. However, be aware that not all jobs advertised "for young talented scientists" or "young investigator groups" are in fact independent. What you need is some lab space at a half-decent German research institute and a grant of about €1.5 million. This will cover your own position for the next five years, up to three additional lab members, running costs and a pretty lab toy. As in real life, the first million is the most difficult. Once you have secured your initial funding, additional money and staff from other sources will find you with ease. Another bonus is that your position might come with a tenure option leading to a permanent position after successful evaluation at the end of your five-year contract.



German money is not only spent for talented European football players: Luca Toni, Italy (l.), and Franck Ribery, France (r.), playing for Bayern Munich

To my knowledge, the Max-Planck Society was in 1969 the first German funding organization to take the risk of endowing a couple of young scientists with a five-year non-tenured position and sufficient pocket money to set up their own independent group. Most of the other major funding institutions ignored this development for almost 30 years until they started similar funding schemes. Prominent examples include the Volkswagen foundation, who, in 1996 launched its "VW junior groups at German universities" programme. Each group leader was supported for five years with a sum of between €0.8 and 1.3 million. 65 of these VW junior groups were established between 1996 and 2004 and eight of these groups have had group leaders from abroad. Another well-known example was the €75 million BioFuture competition run by the Federal Ministry of Education and Research (BMBF). Starting in 1998 this programme offered grants of up to €1.5 million for a period of five years and triggered an unprecedented stampede. More than 1,400 life scientists applied in six application rounds and 51 candidates finally were successful (14 were German researchers returning from abroad and six were non-German citizens).

The "Junior Professors"

The BMBF also tried to speed up the introduction of "Junior Professors" at German universities, which are known for their resistance to change and their medieval structures. The BMBF estimated that 6,000 junior professors will be needed by 2010 and announced that the first 3,000 will be supported by a €80 million programme. So – The junior professor gets his position and some extra cash from the university agreed during his contract negotiations and a one-off payment from the BMBF. Or, to be more precise, the university gets the scientist's money and distributes it according to the requirements of his scientific discipline, often arbitrarily. In 2002 BMBF's contribution was €76,000 and in 2003 and 2004 €60,000 per junior professor. Approximately 800 scientists at 70 universities cashed in on the BMBF money. One of the major criticisms of this programme is that for life scientists especially, this money is a drop in the ocean and that junior professors are totally dependent on their university or on third party funding once the welcome gift is used up. Moreover, junior professors starting after 2004 no longer received this BMBF money. About 400 past and present junior professors responded to a questionnaire distributed by the CHE (Center for Higher Education Development) and the results were published in May 2007. About 6 % of all junior professors were non-German citizens or had dual citizenship. In engineering and medicine this rate was the highest, at approximately 10%.

The Pact for Research & Innovation

More than two years ago, the German Federal Government and regional governments adopted the "Joint Initiative for Research and Innovation". It was agreed that the five major German scientific funding and research organizations would receive,

over the five years until 2010, a budget increase of at least 3% per annum. In turn, the organizations agreed to do their homework and committed themselves, amongst other things, to installing or further developing structured support for doctoral students and young scientists in general and to increase their support for women in science and research in particular. For you, this means that in the coming years there will definitely be additional young investigator groups coming into existence in Germany. Below I will present an overview of the status quo and of the organizations' first steps towards fulfilling their contractual obligations.

Tips for Starters

It is not as easy as it should be to find advertisements for independent group leader positions in Germany. Of course, some are published in the premier science journals or major German newspapers. However, some you may never find, for several reasons. One is that these positions are often used to promote the best local post doc. The fewer candidates that apply, the higher his odds. Therefore these positions are seldom made public and, when they are, are published in journals, newspapers and on web pages you have never heard of. Another trick is to write the job description in such a way that only local candidates meet all the criteria. Sometimes, job offers are not displayed prominently on web pages, so you have to wade through several menus until you find them. Some organizations include a lot of information about research funding on their web pages in German, but only a small percentage is available in English. Moreover, larger research organizations at many different institutions often have no central portal where young investigator groups are announced.

If you decide not to try to get funding first and use it as bait for employment, lab space or additional goodies, you first have to find a patron and/or suitable host institution. This option has several advantages. Your patron or your future host institution are most likely familiar with the funding options that apply to you as a foreign scientist, and you may receive help in the preparation of your funding applications. In addition, for many funding institutions the quality of your future host institute and how you fit in there is one of the major selection criteria. On the other hand, by applying for such a group together with the institute, you may not always be able to transfer your money to another institution if things go wrong. You may also be unable to ask for extras, which could be forthcoming if different employers compete for you as a gifted scientist coming with cash in hand.

Max-Planck Independent Junior Research Groups

The Max-Planck society maintains 78 research institutes in Germany with approximately 23,400 employees and a yearly budget of €1.43 billion. At the moment there are 73 independent Max-Planck junior research groups. One third of these groups is supervised by non-German scientists. In biomedical research you usually have to outplay at least nine competitors to get one of these particularly popular positions. You will then receive a W2 salary (equivalent to associate professor), a post doc, two PhD students, a full and a part-time technician, €71,5000 consumables p.a. and a one-off payment of €330,000 for basic lab stuff and further equipment. Initially, you get a five-year contract, which, upon evaluation, might be extended to seven or to a maximum of nine years.

Gaia Tasovanis leads a Max Planck independent junior research group at the Max Planck Insitute for Neurobiology in Munich.

Since 2004 the Max-Planck society has also advertised new group leader positions that no longer have a thematic focus or are restricted to a specific Max-Planck institute. These groups are not as well supported as the other junior groups, meaning that they receive one part-time technician and one student less as well as "only" €50,000 consumables p.a. and a €150,000 one-off payment. The group leader simply applies with details of his future project and three names

of his preferred institutes. The application is done online. It is amazing how much money you can get for just five to six pages including a short CV, a publication list, a one-page summary of your past and a 2-page summary of your future, names of three referees and finally your three most important publications. If you succeed you will be short-listed and invited to give a seminar at a symposium together with your competitors. In the past three application cycles there were 1,400 applications and 50 winners. To a large extent these new groups are all financed by the pact for research and innovation.

Since 2001 the Max-Planck junior groups have been further internationalized. This means that German scientists are now able to head a Max-Planck group at a foreign partner organisation, for example the CNRS in France, the Weizmann Institute in Israel and the Polish Academy of Sciences. In return, scientists from a partner organization are given the possibility to lead a group at a Max-Planck institute in Germany. In addition, the Max-Planck society has a special programme for highly qualified women called the W2 Minerva Programme. This funding line includes a five-year W2 position, staff and consumables comparable to that of the independent junior groups. Currently there is a yearly budget for 30 groups. The percentage of non-German scientists is about 30%. Applications for these posts are handled by the individual Max-Planck institutes and are subjected to international review.

DFG Emmy Noether Programme

The Deutsche Forschungsgemeinschaft (DFG) is the largest European research funding organization, with an annual budget of about €1.4 billion. The DFG offers a couple of different opportunities for young investigators from abroad. With few exceptions it is sufficient to declare that you intend to sustain your career in Germany after the DFG funding is finished. For example, there are 130 smaller DFG grants per year for so-called "temporary positions for principal investigators", which pay for your own salary for two to three years plus some staff and consumables. Then there are independent junior groups available, either associated with collaborative research centres (Sonderforschungsbereiche) or research units (Forschergruppen) but for now I intend to focus on the more prestigious Emmy Noether (EN) Programme.

The programme was launched in 1999, was modified several times and has so far supported 461 EN groups. Its primary intention is to attract young and outstanding post docs working abroad back to Germany and to provide them with the opportunity to lead their first research group. EN groups are funded for five years and may be extended under certain circumstances for one additional year. Usually the group leader position (€66,000 to €72,000), one post doc, a PhD student and a technician (depending on the project) and additional money for consumables, instrumentation and travel are granted. There are no submission deadlines, but you may ask the DFG when the next meeting of your review panel takes place and send in your application in advance. The evaluation process takes about six months and requires a written 20-page proposal and an oral presentation of your project. Approximately 30% of all applications are successful and 50 to 60 novel EN groups are funded each year. In July 2007 268 EN groups were active in Germany. More than 80% of all group leaders have German citizenship.

To submit an application your doctorate should not be older than four, or, if you are a licensed physician, six years. You need to have worked as a post doc for two years and have had at least one year of international experience either during your doctoral or postdoctoral period. Your internationality may also be demonstrated by scientific cooperation with scientists from abroad and be documented by publications. If you are a Non-German citizen and have just completed both your doctorate and post doc in Germany you do not fully meet the international experience requirement. At the time of the application process you may propose several locations for your future research project but you have to decide where to start within two months of your applica-

The DFG Emmy Noether Programme has been a success story

tion being granted approval. In general, you are not allowed to move back to the university where you got your doctorate. You will receive the money for an initial period of three years. If your intermediate report is positively evaluated you will continue to receive cash for years four and five. If not, you will receive some run-out financing in the fourth year.

Currently, six out of seven scientists are appointed to an associate (W2) or full professorship (W3) funded by the EN programme. If you are appointed during the first three EN years you do not have to write an interim report, but the money for your own position is lost. However, you may use the remaining grant money and even take it with you if you get a comparable position at a European university. A junior professor may also apply to the EN programme.

Helmholtz Young Investigator Groups

The Helmholtz Association encompasses 15 major German research centres including the German Cancer Research Centre DKFZ at Heidelberg, the Max-Delbrück Center for Molecular Medicine at Berlin-Buch and the Helmholtz Centre for Infection Research at Braunschweig. The association safeguards the interests of 26,500 employees and spends €2.3 billion each year. Six years ago, as part of a major reform process, the Helmholtz association established a special programme to support young scientists, with the prospect of tenure in the following research areas: energy, earth/environment, health, key technologies, structure of matter and transport/space. The initial aim was to establish within the next five years 100 of these young investigator groups with the networking funds of its president, Jürgen Mlynek. In spring 2008 the 6th application cycle will be launched and it is planned to select about 20 new groups. Each group is supported with a minimum of €250,000 per year, which covers the salary of the group leader (between €66,000 and €72,000), three additional personnel and consumables. The money is provided for five years if the candidate is appointed as a junior professor for six years. In the case of a positive evaluation after three to four years the position of the group leader will become permanent.

The young investigator groups come in two flavours: Helmholtz groups and Helmholtz-University groups. In the first case the group leader has no established ties to a German university, but is expected to build up close contacts during his funding period. A Helmholtz group may also be established at a foreign institute in exceptional cases. In the second case the group leader already had connections with a university partner from the beginning and the Helmholtz-University groups are set up by both parties on a research topic that is of interest to both. The group may be located at a Helmholtz or a university institute and if possible the group leader should be given a joint appointment as junior professor.

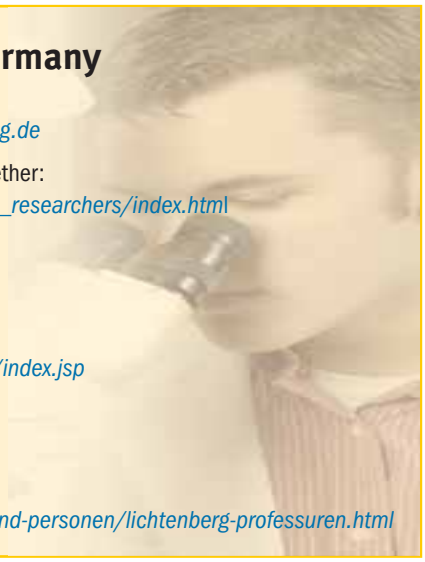
The application process is quite complex, encompasses several hurdles and takes approximately seven months until the final decisions are made. First, you have to contact the directors of the Helmholtz institutes you are interested in and find out whether there are grounds for further discussions. The next step is to provide a CV, a list of publications and a letter describing your proposed research (maximum two pages) to your favoured institute, which, in cooperation with the university of your choice creates a ranked list. Then you will be asked to write a full application, including a research programme of approximately 20 pages. The Helmholtz and the university institute then produce a document giving details of your future integration, financing, infrastructure and tenure track perspectives. The whole package is read by at least two international experts and the most promising candidates – no more than 30 – are invited to give a presentation in front of the Helmholtz group review panel. In order to apply, your PhD has to have been two to six years ago, and you should have at least six months work experience abroad.

Moreover, the individual Helmholtz institutes also offer young investigator groups without tenure. According to Thomas Gazlig from the Helmholtz association there are around 60 to 180 additional groups, depending on the definition of a junior group. Approximately one half of the group leaders are Germans living in Germany already, the other half are Germans returning home and foreign scientists either resident in Germany or elsewhere.

The Leibniz Association

The Leibniz association comprises 84 non-university research institutes, museums and service facilities, which are scientifically and economically independent and are financed by the Federal Government and the German regional governments ("Länder"). It has an annual budget of €1.1 billion and 14,000 employees. Re-

Young Investigator Groups in Germany



- Max-Planck young investigator groups: *www.snwg.mpg.de*
- DFG programmes for young investigators - Emmy Noether: *www.dfg.de/en/research_funding/promoting_young_researchers/index.html*
- Helmholtz Association: *www.helmholtz.de/*
- Leibniz Association: *www.wgl.de/extern/englisch*
- Fraunhofer Attract programme: *www.fraunhofer.de/fhg/EN/jobs/Fraunhofer_Attract/index.jsp*
- Sofja Kovalevskaja award (Humboldt Foundation) *www.avh.de/en/programme/preise/kova.htm*
- Lichtenberg Professorships (Volkswagen Foundation) *www.volkswagenstiftung.de/foerderung/strukturen-und-personen/lichtenberg-professuren.html*

search is divided into five sections, the two major sections being life sciences and mathematics/natural science/engineering. Institutes in the life science section include the Bernhard Nocht Institute for Tropical Medicine (Hamburg), the Heinrich Pette Institute for Experimental Virology and Immunology (Hamburg), the German Primate Centre (Göttingen) and the Institute of Molecular Pharmacology (Berlin). There are institute-specific possibilities of establishing young investigator groups, but due to the independence and heterogeneity of Leibniz institutes there is currently no consistent programme for junior scientists offered by the Leibniz association.

To win cash earmarked for research and innovation a competitive procedure was initiated. Individual institutes fight for funding for young investigator groups and graduate schools financed by a central Leibniz fund. Since 2006 less than ten young investigator groups have been created from this pool. In some cases, applications are done together with the prospective group leader, in others the positions are publicly announced after confirmation of funding. In addition, there is a central programme for female scientists. Also in 2007, the Leibniz association announced a strategic partnership with the Humboldt University in Berlin. Ten Leibniz-Humboldt professorships will be appointed by both the Humboldt University and an institute of the Leibniz association until 2010. The maximum duration of these W2 professorships is nine years and the amount of funding is not fixed and is dependent on negotiations. For more details and opportunities contact individual Leibniz institutes.

The Fraunhofer Attract Programme

The Fraunhofer society is a research organization with 56 institutes in Germany and approximately 12,700 employees. Its focus is on applied science and two thirds of its annual research budget of €1.2 million is raised via contract research. Five institutes contribute to the life sciences sector, which is a smaller research area with a total staff of 600 and a yearly budget of €44 million. The four major business areas in this section are food production and safety, drug development, regenerative medicine and the testing and evaluation of substances. By 2009 the Fraunhofer society plans for the Fraunhofer Attract programme to establish up to 40 young investigator groups, which are run by scientists who have never worked at a Fraunhofer institute. The programme is not financed by funds from the pact for innovation and research.

Ten Attract group leaders have already been announced in 2007 and the next deadline is November 16th, 2007. Decisions on funding will be made within two months after the deadline. Each group is given for five years up to €2.5 million in total, which is sufficient to hire three to five co-workers. The groups should develop ideas suitable for application and close to market requirements and are expected to bring in revenues at a later phase of the project. Applications are submitted in combination with the respective institute. Initially, three years are funded; upon positive evaluation you get two additional years. After five years the Fraunhofer society aims to offer successful group leaders true career prospects (whatever this means). In the first application round only German scientists applied.

Sofja Kovalevskaja Award

The Sofja Kovalevskaja award is intended for outstanding junior researchers who wish to perform a research project of their choice for a five-year period at a German research institution, without administrative hassles and with no shortage of money. Sound good? It is good! The finance for this award comes from the BMBF, but the award is administered by the Humboldt foundation. In 2008 there will be eight awards, each worth up to €1.65 million. This sum includes your own salary (€81,000 before deductions, a salary equivalent to that of a C3/W2 professor) and funds for additional personnel, travel, equipment and consumables. The award is open to all scientific disciplines and all nationalities.

You may apply if the completion of your doctorate was less than six years ago. If you do not have a doctorate but a publication record that is commensurate with a PhD, you may apply up to ten years after completing your Master's or Diploma. If you are German you must have worked abroad for at least five years. A Non-German researcher already working in Germany may apply if he has been no longer than two years in Germany. The application is done together with the host institution, which has to provide basic equipment, lab space and access to the necessary research infrastructure. In addition, they have to give an administrative agreement and reveal details of how your new research group will be integrated and whether you will be granted the right to supervise doctoral students. Reference letters have to be sent directly to the Humboldt foundation by your thesis advisor and other scientists with whom you have worked in the past. Depending on your scientific discipline and your work requirements you have to prove a good knowledge of German (medicine, humanities, social sciences) or of German or English (engineering, natural sciences). The next deadline for this award is January 4th, 2008. Since 2001 there have been 57 beneficiaries from 17 countries, including 13 German scientists.

Lichtenberg Professorships of the Volkswagen Foundation

VW junior groups were discontinued in 2002 and replaced with Lichtenberg professorships, with a somewhat different scope. 10 to 12 of these professorships are awarded each year and are intended to provide support at the personal as well as institutional level. This means that the scientist has the opportunity of a future permanent

position and the university has the possibility to attract outstanding scientists in order to establish and integrate a novel research or teaching topic. The main target group is scientists of all disciplines within four years of obtaining their PhD and preferably with international experience (W1). In addition, professorships are available for more advanced candidates within seven years of obtaining their PhD (W2) and fully established professors (W3) coming to Germany from abroad. The more established the scientist the higher the contribution of the recipient university has to be. The university has to provide a significant amount of budget and resources, which in the case of a W2 professorship means 10% of the budget and in the case of the full W3 professor means an equal contribution. It also has to guarantee tenure track or that there are funds for a permanent W2 or W3 professorship after the VW funding ends. Initially, between €0.8 and 1.5 million is granted by the VW foundation for a period of five years. Thereafter, a smaller and decreasing amount of money will be made available after a successful evaluation for a period of up to three years. In contrast to the VW junior groups Lichtenberg professorships are intended for innovative research in new or interdisciplinary research areas. So far 27 approvals, including six for foreign scientists have been made with a volume of approximately €32 million. The deadline for Lichtenberg professorships is November 1st in any given year.

Perspectives for 2008

I have tried to give you an overview of young investigator programmes and awards funded by German organizations. If you do the sums you will find that there will be about 200 new groups in 2008 alone from the possibilities detailed here in this article. As you may have noticed the percentage of foreign group leaders is highly variable from 0 (Fraunhofer Attract) to over 30 (Max-Planck groups) to more than 70% (Kovalevskaja Award). Try to figure out whether your position is truly independent, whether your young investigator programme is accepted and well established in the scientific community and whether the commitment to support you as a foreign scientist with German taxpayers' money is real and unbiased. If so, get on with it and write your application! RALF SCHRECK