

Fellowship for Outstanding Female Researchers

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The [International Post-Doc Initiative \(IPODI\) of the Technische Universität \(TU\) Berlin](#), Germany, is part of an initiative (Wissenschaftlerinnen an die Spitze; Female Scientists Toward the Top) that aims to increase the number of women in leadership positions. IPODI supports outstanding international female researchers and will ultimately award 23 two-year fellowships between 2013 and 2018.

Fellows receive a two-year employment contract and a monthly stipend for research costs. They can attend German classes and a career development and research management training program specifically aimed at female postdoctoral researchers. They can benefit from all education courses and services offered by the university.

Professor Reinhard Schomäcker is one of the professors at the TU Berlin who works together with IPODI fellows. In September 2015, **Dr. Mino Tasbihi** from Iran, who previously worked as an assistant professor in Slovenia, started working in his group. Starting in August 2016, **Dr. Ewa Nowicka** from Poland, currently in a postdoc position at Cardiff University, will also work in his group.

Professor Schomäcker, what is your experience in working together with IPODI fellows?

R. Schomäcker: They are excellent researchers who enrich my already international group.

In contrast to other fellowship programs such as the DAAD (Deutscher Akademischer Austauschdienst e. V.; German Academic Exchange Service) or the Alexander von Humboldt Fellowship, the research proposal of an IPODI candidate has to fit with the fields of research represented at the TU Berlin and the proposal needs the support of a cooperating and mentoring professor of the TU. This involves more work from the professor during the application process than for other postdocs.

However, if the fellowship is awarded, the postdoc position is much more predictable, as you know you have two years

of funding and not a six-month contract.

What got you interested in IPODI, Dr. Nowicka?

E. Nowicka: What got me interested in IPODI was the profile of this fellowship, as it focuses on female researchers across a whole range of disciplines. The fact that applicants must have a minimum of three years of postdoctoral experience is quite unique and shows the prestige of this program.

Moreover, Berlin is a great place to do research in the field of chemistry I am working in now (catalysis), therefore, applying for IPODI at the TU Berlin looked like the perfect solution for me.

Can you say something about your career path please, Dr. Tasbihi?

M. Tasbihi: I studied chemical engineering in the food sciences in Teheran. When I started, I thought the perfect job would be in the chocolate industry. However, my field for my master's studies was in petrochemical engineering, and I then started working for a petrochemical company in the south of Iran.

I had a good job with a good salary, but I decided to go back into research. I was first in Malaysia, then got my PhD in Slovenia. After a short postdoctoral stay in the Netherlands, I got a permanent position as associate professor in Slovenia. However, I was not able to work on my own project there. So I applied to IPODI and got the position.

Can you please briefly explain the focus of your work and why it is of current interest?

E. Nowicka: My work is related to the utilization of greenhouse gases. Carbon dioxide as well as methane are some of the greenhouse gases responsible for global warming. So far, no high-volume processes have been applied in the utilization of these gases. However, it is possible to combine them in an oxidative coupling reaction to form high-value molecules that can be used as fuels. This project is pretty important, especially in light of fossil fuel limitations, as it is necessary to seek for alternative sources of energy.

M. Tasbihi: My research interest is photocatalytic reactions. The idea is to use sunlight to convert CO₂ from the air into methanol. Other people had some results with this, but to date the efficiency has been very low; methanol is only produced in very low concentrations.

To increase the efficiency, I study how to optimize the selective photoreduction of CO₂ to methanol. I have to improve my photocatalytic material, improve the setup of the reactor, and test the material and the reactor. If I have enough time, I would like to scale up the reactor and make a test on the roof of the building with a large reactor and sunlight.

What distinguishes your work from others?

M. Tasbihi: Most of the references for CO₂ photoreduction use TiO₂ as a photocatalyst. I use a single-site noble-metal-loaded titania/silica immobilized on fiber glass to catalyze CO₂ photoreduction processes. I also study different reactor setups.

What motivates you in your research?

M. Tasbihi: The advances in photocatalysis technology show a promising application potential for significant reduction of CO₂ emissions and a positive impact on climate change. I am fascinated by the idea to use the sun as a sustainable energy source, reduce CO₂ emissions, and produce a product that can be used as a fuel or building block.

E. Nowicka: I am motivated by the fact that my research might contribute to the betterment of others' quality of life, and improve the existence of the next generations. Maybe my contribution is as small as a drop in the ocean, but without many drops, the ocean wouldn't exist.

I also find myself becoming easily motivated by a simple thank you from people that I have helped.

What do you enjoy most?

M. Tasbihi: It is great that there are not only chemists in this lab, but also chemical engineers. Exchange is very good.

E. Nowicka: I enjoy educating younger generations of scientists, as teaching was and is my passion. I love introducing the world of science to those who just started learning and are asking about the surrounding world. I am also passionate about working with students and discussing research with them. It gives me real pleasure to explain complicated processes using simple language as very often our society doesn't know where the different items come from, how electricity is generated, or how we recycle waste products.

From your experiences, what are the biggest challenges young scientists are facing?

M. Tasbihi: To be so uncertain about the future. I have a job until next year and then I don't know what will follow after that. But I have a family and a child and responsibilities there.

E. Nowicka: In my opinion, the biggest challenge is related to the mobility of young scientists. Our career profile requires lots of traveling and moving from one place to another in order to gain experience. Therefore, settling down or starting a family might become a real problem for many young researchers.

A second problem is the funding for the projects. Very often, great ideas are not funded as there is no prestige associated with young, new scientists.

M. Tasbihi: That is right. And I feel it gets more difficult to be a scientist the further you go. It is not easy to become a professor; the closed system in Germany does not make it easy for foreigners. To continue my research, I have to be able to get a DFG project after the IPODI project runs out. But they say that chances are very low – just 10 %. If I try to find something in industry, companies tell me that I am too highly qualified with a PhD and two postdocs.

What would you change if you could?

E. Nowicka: Perhaps I would have started learning languages at an earlier stage. Although I started learning German at the age of 10, it was only a decade later, that I understood the importance of knowing a second language. I believe that the ability to speak another language gives us the opportunity to follow another path. I've been fascinated by languages and I hope to speak four languages in the near future.

M. Tasbihi: There should be more money/more funding options for young scientists like us and along with this more security. If you want to have money, you have to apply for the money yourself. You have to get your own budget for your project. This is not easy, as Ewa said, and competition is very high.

Fellowships should give women with a small child one extra year. Alexander von Humboldt has something like this, IPODI does not. IPODI is exclusively for women – but not exclusively for physical scientists. If you do not have to work in the lab, but for example, are a specialist in German studies, it is much easier to take care of a child. I can write an article at home but, of course, I cannot do my experiments at home.

What was some good advice you received?

M. Tasbihi: If you want to be successful you have to be really persistent. This was an advice a professor in the Netherlands gave me.

E. Nowicka: Once I was given the advice that opportunity never knocks twice, which means that you need to take advantage of every possibility to fulfil your dreams. I really like this idea, as sometimes we are too focused to notice the chances that life gives us. Maybe sometimes we are too busy or even scared to take what life offers us, hoping that the next chance will appear soon.

The other good piece of advice was given to me during the early stages of my PhD by my former postdoc. He once mentioned that your PhD is the time where nine out of ten experiments are set to fail. This advice helped me to restore my faith in my research and experiments. I understood that sometimes lack of good data is data itself. We are indeed learning from our mistakes and we are turning our failures into expertise.

Thank you very much for your time and the interview.

Ewa Nowicka received her MSc in Environmental Chemistry from the Adam Mickiewicz University, Poznan, Poland, in 2007. After studying at the University of Bremen, Germany, and working as a laboratory assistant at PharmaMar, Madrid, Spain, she obtained her PhD at Cardiff University, UK, in 2011.

Currently, Ewa Nowicka is postdoctoral research associate with Graham Hutchings at Cardiff University. She will start her IPODI fellowship at the Technical University of Berlin, Germany, in August 2016.

Minoo Tasbihi gained her BSc in Chemical Engineering from Azad University, in 2000 and her M.Sc. from the Iran University of Science & Technology, both in Tehran, Iran, in 2003. After having worked as process engineer at Shahid Tondgoyan Petrochemical Company, Mahshahr, Iran, she was research assistant at the University of Science Malaysia, Penang, Malaysia, from 2005–2007. In 2010, she received her PhD from the University of Nova Gorica, Slovenia, and was a research assistant there from 2007–2013. From 2011–2012, she was a postdoctoral research fellow at Eindhoven University of Technology, The Netherlands, and from 2014–2015 she worked as an assistant professor at the University of Nova Gorica.

Currently, Minoo Tasbihi is an IPODI fellow at the Technische Universität in Berlin, Germany.

Reinhard Schomäcker earned his PhD in Physical Chemistry from the University of Bielefeld, Germany, in 1987. He held a postdoc position at the Max Planck Institute for Biophysical Chemistry, Göttingen, Germany, from 1987–1990, and thereafter was a research scientist at Bayer AG, Leverkusen, Germany. Since 1996, Reinhard Schomäcker has been a full professor at the Technische Universität in Berlin, Germany.

Since 2007, he has been head of the Berlin International Graduate School of Natural Sciences and Engineering (BIG-NSE) and a member of the Cluster of Excellence "Unifying Concepts in Catalysis, UNICAT".

His research interests are catalysis, multifunctional reactors, multiphase systems and the application of colloids in chemical reaction engineering.

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