

National Women in Engineering Day, 23rd June 2015

SAGE Interview with Prof. Dipl.-Ing. Dr. techn. Ille C. Gebeshuber,
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How did you get into engineering?

Ever since I was a young girl I was fascinated by nature and machinery; the stars in the sky, the colours of the rainbow, seeds and how plants grow from them, how mechanical watches work, hydroelectric power stations. Pretty early on I knew it was going to be physics. And then when I was about to choose the university for my studies, I found out that if you study physics engineering, you become a diploma engineer. In my little village in the mountains of Austria, we had a steel processing plant, and the most appreciated people there in the company were the diploma engineers. I wanted to become one too. So, I selected engineering physics and loved the studies, the teachers, the field, the enormous possibilities. Engineering can change the world – and engineers are the driving motor of this change.

Why did engineering appeal to you as a career?

Engineering is so important in various aspects of our daily life. How we obtain raw materials, how we process them, how we refine them, get them into the shape we need, assemble them, make them work, optimize them with little refinements here and there, sometimes using completely disruptive new approaches until it fits perfectly - how to dispose of devices and machinery at the end of their life cycle – all this has high appeal to me.

Did you find it difficult to start your career in engineering?

No, I did not find it difficult to start a career in engineering. I had strong supporters and mentors from academia and industry, guiding me through initial potential pitfalls, and connecting me to their networks. I now mainly work in tribology (the science and technology of friction, adhesion, lubrication and wear), nanotechnology (the science and technology of the very small – we built a microscope with which we can measure tiniest currents from ion channels in organisms) and biomimetic, which refers to the knowledge transfer from living nature to engineering. Now, as an established engineer, I also help young ones to successfully start in their engineering field, as a mentor.

Why do you think so few women see engineering as a prospective career?

I have been living in South East Asia for more than six years now, and here, there are as many women as men in engineering. So, I think the low number of women in engineering back home in Europe is due to cultural reasons. With proper education, mentoring, role models and career

prospects, it should be easy to increase the number of women in engineering – adding diversity as well as new angles of viewing and addressing issues and possibilities.

What advice would you give to young people looking into an engineering career?

Engineering is fascinating. But only if you are interested in it. If you are, if you want to know how things work, if you want to improve materials, structures and processes for the devices and applications that are so important in the lives of billions of people – go for engineering! It is a great field to work in, with nice colleagues, great prospects and lots of fun – and the possibilities to contribute and take over responsibilities.

As few as 5.5% of engineering professionals are female according to a WISE survey- how do you think we can encourage more women to consider Engineering as a career?

I think it is important to have role models. As a girl, all the engineers I knew were men. I think it would help girls if they meet female engineers, talk to them, have them show them how they work, see them on TV, in the cinema, everywhere. Female engineers are great. As are male engineers. And together – wow – we have synergistic effects, and both gain 😊

What do you think are the biggest challenges for women embarking on a career in engineering?

I think in many engineering fields there are still prejudices against female engineers, and girls might also think it is a job where you get your hands dirty. Actually, it is great fun to get your hands dirty. To play, to experience, to refine approaches, to – at times – break things, to understand mechanisms and processes, to be a playful and inquisitive mind, designing, assembling and refining the devices people rely on. It is a job with responsibility. A job where you can contribute, where you create. We have creative, inquisitive minds in both boys and girls. The school system needs to support them, and empower them – and then, they will see no obstacles for embarking on a career in engineering – be they male or female.

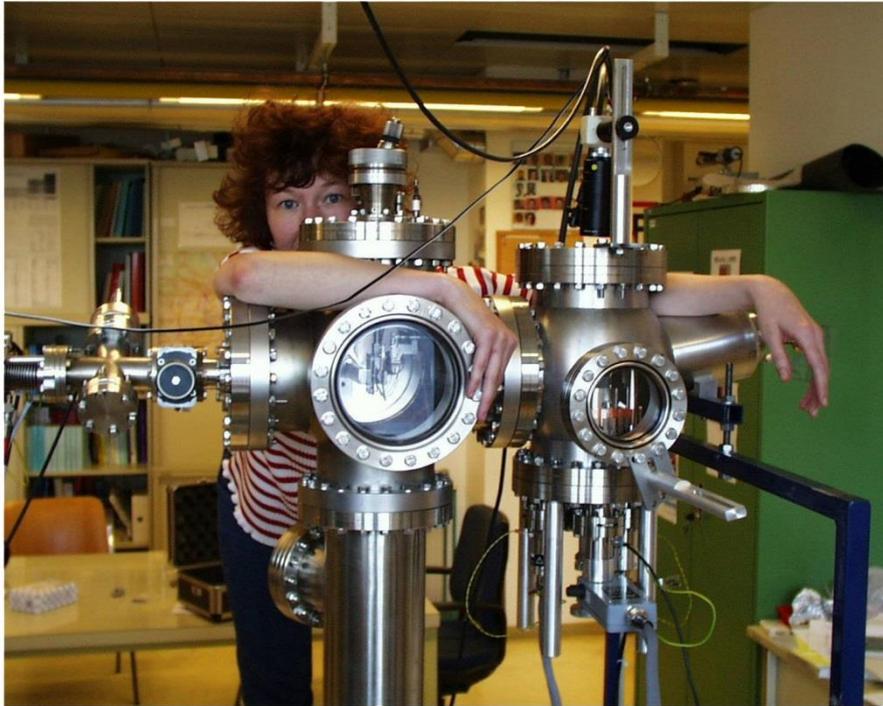
What advice do you have for women who currently work in engineering?

I think it is important to talk about the joy we have in our jobs to the kids, the young ones, and the ones who are currently deciding which career to embark on. Some words, a little chat, can change lives. And a solid career in engineering is the pathway to a bright future.

Any other comments/thoughts?

I think many girls are interested in the social aspect of their future work. It might be a good idea to highlight the importance of engineers to the future of humankind – how we do things influences how the world will develop. Engineers doing the best engineering possible can contribute so much for a good future for the whole biosphere, not just people alone, by developing responsible, sustainable approaches – and this is something many girls are interested in. And it pays good money 😊

Here is a photo of me with an Omicron UHV AFM/STM which is used to investigate effects of ions on surfaces – research that is important for potential future energy systems inspired by the energy conversion performed by our star, the sun.



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