



# Get to know the corrosion fighters

They have told us their story, how will yours be?



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Winner of the **European Corrosion Medal 2023**

## Could you give us a little presentation of yours?

My academic journey began in physics, after which I delved deeper into electrochemistry and surface science, eventually focusing my research on corrosion. This path has allowed me to explore the intricate interactions at the interface of materials and their environments. I think over the years, together with my group, we have succeeded to contribute significantly to the field.



## What is your job title? What does it consist of?

As the head of a research group at the Max-Planck-Institut für Eisenforschung, my role encompasses leading investigations into the fundamental aspects of corrosion processes, such as cathodic delamination, self-healing coatings, and hydrogen embrittlement. My responsibilities include securing research funding, preparing reports, supervising team members, and managing various administrative tasks to support our scientific endeavors.

## How did you get here?

I was first offered a position at the University of Erlangen, by my former PhD supervisor. I was at that time doing postdoctoral research in Austin. Then in 2000, I went with him from Erlangen to Düsseldorf, where the MPIE was completely restructured and helped to build up the Department of Interface Chemistry and Surface Engineering.

## Who has helped? Was networking important?

While networking certainly plays a crucial role in any professional journey, my advancement was primarily due to the support of my former PhD supervisor, who offered me the opportunity based on our longstanding relationship and his familiarity with my work.

### **What do you like most about your profession?... Is there something you don't like?**

The breadth and impact of corrosion research are what I find most rewarding; it intersects with virtually all facets of our technological world and infrastructure. However, the complexity and variability of corrosion processes pose significant challenges, particularly in predictive modeling. This complexity, while daunting, also adds a layer of fascination to the work.

### **If you didn't dedicate yourself to this field, what would you have liked to be?**

As said, I studied physics. When I got my diploma, that was in the early nineties where there was a lot of unemployment in Germany. I applied for many different positions, mainly PhD positions and the one I finally chose was focused on corrosion. In fact, I always wanted to do something with electrochemistry and my PhD involved mainly electrochemical investigations, so I was quite happy. And it turned out to be really interesting. During my physics studies I also took chemistry courses and a very interesting course of photo-electrochemistry, which really fascinated me. A big topic then was solar energy conversion by photo-electrochemistry. Now we see all the corrosion problems related to energy conversion that we need to tackle. So, interestingly these topics now come back to me. So, you see, one should always try to make the best of what is offered to you. At the end you will see, topics come back.

### **Something curious that has happened to you within your career and that you remember with a smile?**

During my career many curious things happened. Quite often things turn out differently than expected. While no single event stands out, the constant unpredictability and the challenges it presents have been a steady source of inspiration.

### **Do you think this field needs more visibility?**

Absolutely. The importance of corrosion research extends far beyond the common perception of it being merely about rust. Raising awareness about its significance is crucial for achieving improved sustainability and supporting the transition towards greener energy solutions.

### **How do you think a good corrosion professional should be?**

A good corrosion professional should possess a broad perspective, considering the materials, environmental parameters, and their temporal evolution. Whether working on applied or fundamental research, the ability to integrate these factors is paramount.

### **In your opinion, what is the single most valuable attribute a researcher should have?**

Success in research does not hinge on a single attribute but rather a combination of traits, with persistence being particularly crucial. The complexity of many corrosion problems requires a steadfast commitment to uncovering solutions.

### **What are you mainly looking for in the CVs you receive?**

I value candidates who demonstrate a genuine interest in our research field, particularly those who are passionate about exploring fundamental questions and tackling experimental challenges, maybe even in a specialised sub-topic that is part of my research agenda (but that is not a must). Furthermore, I am looking for indications that candidates have potential to master also difficult experimental problems.

### **What advice would you give to students in an early stage of their careers?**

Focus on building a strong foundation in fundamental understanding. This foundation is crucial for addressing a wide range of problems, with experience and specialized knowledge developing over time through practical work.

### **Could you say how you see the future of engineers/corrosion scientists? Any advice?**

Corrosion science is pivotal for addressing future challenges in sustainability and CO<sub>2</sub> reduction. Opportunities in this field are vast, for instance in areas like fuel cells and electrolyzers. Corrosion scientists are essential for the development of sustainable technologies and will continue to be in high demand.

### **Corrosionist... is it born or made?**

Becoming a corrosionist is not predetermined at birth; it is shaped by choices and circumstances throughout one's life. The field of corrosion science is diverse and interdisciplinary, allowing for a wide range of entry points and specializations based on individual interests and decisions.

### **TO END... COULD YOU TELL US...**

- *A color: blue, like the blue sky*
- *A number: 0, representing our aim of zero corrosion, which we will, of course, never fully reach*
- *A song: "Hoch" from Tim Bendzko*
- *A hobby: Hiking*
- *A city: Hamburg, my town of birth*