

Title	Being thorough and carving a path within a school that values independence : associate professor Takashi Yamamoto
Sub Title	
Author	池田, 亜希子(Ikeda, Akiko)
Publisher	Faculty of Science and Technology, Keio University
Publication year	2024
Jtitle	New Kyurizukai No.41 (2024. 10) ,p.4- 5
JaLC DOI	
Abstract	
Notes	The science of electrodes from Keio's Faculty of Science and Technology : crafting a sustainable society through electrochemistry Takashi Yamamoto : associate professor Department of Chemistry The interview
Genre	Article
URL	https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=KO50001003-00000041-0004

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Being thorough and carving a path within a school that values independence

Yamamoto describes himself as unable to move on from something until he is convinced that he has examined it from every possible angle. Along the way, he is able to give his all to issues that demand his undivided attention. One can only imagine how this painstakingly accumulated expertise and experience might be used to fuel future research and education at the university.

I understand that your father also worked as a professor at a university.

That's true. He specialized in soil microbiology and taught at Shimane University. As a child, I would often visit my father's lab, which made me want to follow in his footsteps by studying agriculture. As fate would have it, I actually failed the exams for the national university I applied to for agricultural studies. As a result, I ended up going to Keio University. That's how I got my start in chemistry.

One ironic story I like to share from that time was how my older brother accompanied me on the bullet train when I was visiting Tokyo to finish up some admissions' paperwork for Keio. He looked out the window and shouted, "You can see the Pen Mark logo!" I still remember how I felt gazing up dejectedly at the Pen Mark on one of the Yagami Campus buildings.

How was your time at Keio as a student?

I was surprised by the gap between what I had studied of chemistry in high school compared to what they taught in college. I was especially worried that I would fail organic chemistry. If you don't study, you don't know how electrons move, and if you don't know how electrons move, you don't know how they'll react. I had my organic chemistry classes on Fridays. Afterwards, I would go get dinner somewhere in Hiyoura (the shopping district on the opposite side of Hiyoshi station from the university), head back to the university by 7 p.m., and study for around two hours at the Media Center (the library on Hiyoshi Campus) until it closed. I wasn't really involved with extracurriculars as an undergrad. I had enough on my plate living by myself for the first time in a

completely new city.

How did your working relationship with Professor Yasuaki Einaga develop when you joined his laboratory as a fourth-year student?

I was in the first-ever cohort for the Einaga Laboratory. He was still relatively early in his career, and we had a lot of free time to get to know each other in the lab. It has made it easy to continue working on research together. The ways that we approach our research, though, are quite different. He's what I would call an "elevator type," someone who has a goal and moves linearly towards that goal. I am more of a "staircase type." I like to be sure of my footing and test what I can do every step of the way. I think these differences have actually contributed greatly to our success in working together. Because I am so thorough and don't like to move on without covering all of my bases, my current students seem to think of me as being incredibly detail-oriented [laughs].

Can you tell us more about your experiences studying abroad and working at other universities?

I studied abroad in 2007 at Florida University to learn from Professor Daniel Talham. I admired how detailed his work was and I had always been interested in the types of research he was doing. In person, he was someone who really valued language. He was the one who taught me what it means to explain something accurately.

After returning to Japan in May of 2008, I studied polymers at the Tokyo Institute of Technology (renamed October 2024 to "Institute of Science Tokyo") under Professor Tomokazu Iyoda. He was incredibly strict. Maybe it was because I never met his expectations of how much research I should be completing as a project researcher, or maybe it was because he wanted me to model what it meant to be a researcher for my underclassmen. Either way, I couldn't escape him even in my dreams [laughs]. However, I can't deny that those experiences shaped who I am now as a researcher. I also learned that for every breakthrough research paper or shiny-new technology, there are innumerable mundane and rough experiments taking place behind the scenes.

Fast-forwarding to April 2009, what was it like to return to Keio University?

When I told my family that I would be starting as a faculty member in April, the first thing my father said was, "Don't forget that you are an educator before you are a researcher." I was shocked. It was the first time I had to come to terms with the fact that I would be teaching, despite the fact that I had spent every





As a faculty member, I want to be seen as someone who can provide meaningful answers to my students' questions.

Takashi Yamamoto

Specializes in electro-organic synthesis and solid-state chemistry. Yamamoto graduated with a bachelor's degree from Keio University's Department of Chemistry in the Faculty of Science and Technology in 2002. He then went on to complete a doctoral program at the Graduate School of Science and Technology in 2007, receiving his Ph.D. in Science. He began working at Keio University after completing positions as a postdoctoral research fellow with the Japan Society for the Promotion of Science (JSPS), a visiting research fellow at the University of Florida, and an industry-academia-government project researcher with the Tokyo Institute of Technology's Laboratory for Chemistry and Life Science. At Keio, he was hired as a non-tenured assistant professor with the Faculty of Science and Technology in 2009, was promoted to assistant professor in 2011, became a senior assistant professor in 2014, and assumed his current role as an associate professor in 2023. From 2016 to 2017, he also worked concurrently as a visiting research fellow at the University of Mainz.

waking hour until then focused exclusively on my research and experiments.

I don't know if it was because I had left for a while, but returning to Keio University felt like coming home. It was a very comfortable transition. However, working as a faculty member and being responsible for teaching courses was an entirely new challenge.

I am always trying my best to be able to answer my students' questions as thoroughly as possible. Keio students are all incredibly bright and talented. They'll often look things up on their own before coming to me. In a way, I am the "last line of defense." If my students come to me, I want to make sure that I am approachable and a presence that can offer them advice and hints about what to do to make progress. This is what inspires me to keep learning every day and it is my personal interpretation of the phrase here at Keio, "learning while teaching, teaching while learning."

I have heard that you made a drastic change in your research in 2016. What inspired that decision?

I felt like I had become stagnant in my research, and when I looked at the amount of time I had left in my career as a researcher, I figured I still had time to pivot to a new field (as seen in my research overview). The laboratory where I studied (at Johannes Gutenberg University Mainz) was led by renowned scientist Dr. Waldvogel. There were many excellent students at the lab at the time and the program was designed to allow international students to participate easily. It was an "iron sharpens iron" environment, and I am very proud of the research results we produced (as seen in my research overview).

This made me realize firsthand that long hours in a laboratory are not always the "right" answer. The important thing is to be able to focus and give your full attention to the research at hand.

What would you like to say to any high schoolers who plan to enroll at Keio or to the college students already here?

For my research, I had studied with Professor Talham and

Professor Waldvogel, both of whom are first class in their areas of expertise. If you want to be first class in any given specialty, you need to encounter things that are "first class." Eat "first-class" food, observe "first-class" art, come into contact with "first-class" items.

I personally think that Keio University is an incredibly liberating environment compared to other schools partly because of its commitment to Yukichi Fukuzawa's teachings about "independence and self-respect." Both students and faculty value each other's autonomy. In return, individuals have to practice self-discipline, but I think it's incredibly valuable that it is an environment in which people are challenged, not reproached for failing those challenges, and able to receive critiques on their processes. It's an environment that promotes growth in both students and faculty members, allowing us all to bloom at our own pace.

◎ Some words from students . . . ◎

● Professor Yamamoto has an amazing sense of humor and always enjoys talking with his students. I was working on some basic research about how to change an electrode's properties by altering the functional groups of a diamond electrode's surface. Professor Yamamoto is so knowledgeable about this type of thing that he knows how to give the perfect advice. His motto is "Never be aimless while conducting an experiment." There is a lot of repetition for our research, but I've learned to remain conscious of the reasons behind what I am doing while I am working. Professor Yamamoto is also wonderful about providing feedback on the reports we submit each week, pointing out grammatical errors or faulty logic. As a researcher, I feel like I am able to learn a lot from him as my professor (First-year master's student).

(Interview and text writer: Akiko Ikeda)

For the full text of this interview

<https://www.st.keio.ac.jp/en/kyurizukai/>