

Title	Aiming to produce world-leading research achievements, driven by the passion "I wish to shed light on the truth behind things" : Associate Professor Shinichi Watanabe
Sub Title	
Author	田井中, 麻都佳(Tainaka, Madoka)
Publisher	Faculty of Science and Technology, Keio University
Publication year	2014
Jtitle	New Kyurizukai No.16 (2014. 7) ,p.4- 5
JaLC DOI	
Abstract	
Notes	The Interview
Genre	Article
URL	https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=KO50001003-00000016-0004

慶應義塾大学学術情報リポジトリ(KOARA)に掲載されているコンテンツの著作権は、それぞれの著作者、学会または出版社/発行者に帰属し、その権利は著作権法によって保護されています。引用にあたっては、著作権法を遵守してご利用ください。

The copyrights of content available on the KeiO Associated Repository of Academic resources (KOARA) belong to the respective authors, academic societies, or publishers/issuers, and these rights are protected by the Japanese Copyright Act. When quoting the content, please follow the Japanese copyright act.



Aiming to produce world-leading research achievements, driven by the passion “I wish to shed light on the truth behind things”

An encounter with one book completely changed the life of a boy who had disliked science. Highlighting warm-hearted research scientists dedicated to the pursuit of truth, the book deeply inspired the boy and changed his course of life into becoming a researcher himself. Striving in the highly competitive world of researchers, Dr. Watanabe could broaden and accumulate knowledge about how great scientists of the past as well as those researchers he had met while studying abroad identified their research themes and pursued their studies. Dr. Watanabe says that this knowledge has been very useful in guiding his life to this day.

What was your childhood like?

I was born as the first boy of self-employed parents engaging in electrical work business. As such, word processors and PCs were always around me in my childhood. This family environment naturally led me to take interest in computer programming.

Did you like studying?

Up to my high school days, I liked mathematics and world history but science was my weak point. Science is a subject handling natural phenomena that are complex as well as diverse. As opposed to the purely logical world of mathematics, science involved things still remaining unexplained; this is why I felt some “suspicion” about explanations provided in the science textbook. The science textbook also contained sections to be learned by heart, which seemed dry and dull to me.

As a third-year high school student, however, I happened to read a book entitled “From X-rays to Quarks” which I borrowed at a nearby public library. After reading it, I suddenly became fond of physics. The book was a fascinating account of how “Quantum Mechanics” – that great academic framework representative of the 20th century – came into being. Each and every physicist who appeared in the book was full of individuality and full of human traits. I really wanted to make friends and work with these physicists at some point in the future.

After entering the University of Tokyo, you chose the Department of Physics as a junior, is that right?

Yes. There were so many bright students around me and I was happy being able to study together with these excellent students. On the other hand, I was obsessed by a feeling that I wouldn't be able to survive in this competitive world as a professional if I did the same thing as them.

I made up my mind to study device physics at the graduate school whereas many others chose to major in particle physics or space physics. So, I advanced to the Institute for Solid State Physics at the University of Tokyo Kashiwa (Chiba Pref.) campus. Then, as a postdoctoral fellow, I went abroad to study at the Swiss Federal Institute of Technology (EPFL). In this way, I've been trying to walk a unique path of my own.

To tell the truth, I was at a loss which department to choose, the Department of Physics or Department of Applied Physics. This was because I was somewhat interested in a study that could be applied to the needs of the real world. On the other hand, I

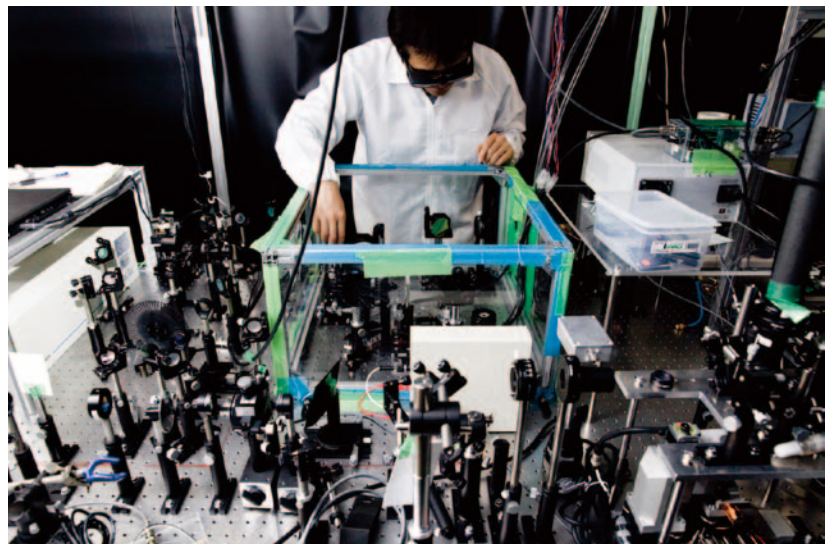
found in myself a persistent passion “I wish to shed light on the truth behind things.” After hovering this way or that, I decided to choose the Department of Physics. It was in those days that I encountered “Optics.” What attracted my interest in particular were research achievements of Dennis Gabor who had won the Nobel Prize for the invention of holography. This gave me strong motivation to become a researcher like Dennis Gabor, so I finally chose the study of optical science.

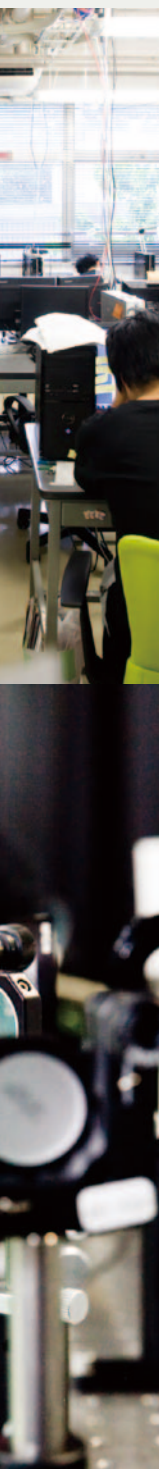
At the Institute for Solid State Physics, I studied fundamental physics of semiconductor laser structure under Associate Professor Hidefumi Akiyama.

I went to Switzerland to study not merely to learn measurement but also the “making of things” as well. Under the guidance of Professor Eli Kapon, I was able to participate in the manufacture of quantum dot of the world's highest quality, which was a truly valuable experience. It also remains a pleasant memory because I could work together with a number of highly individual postdoctoral fellows from many parts of the world.

Then I belonged to Professor Ryo Shimano's lab at the University of Tokyo Graduate School as a research associate, where I took up “condensed matter physics based on terahertz radiation” that led to my current main research theme.

In this manner, I was blessed with valuable opportunities to accumulate experiences – in both “optical measurement” and





I'd like my students to broaden their views of the world by actively gaining a variety of experiences.

Shinichi Watanabe

Born in Tokyo in 1974, Dr. Watanabe graduated from the University of Tokyo, Faculty of Science, Department of Physics in 1997. In 1999, he completed the master's course at the University of Tokyo, Graduate School of Science (Akiyama lab, the Institute for Solid State Physics). In 2002, he completed the doctoral course at the University of Tokyo, Graduate School of Science (Akiyama lab, the Institute for Solid State Physics). Doctor of Science. Then he successively served as a research fellow of the Japan Society for the Promotion of Science (JSPS), a research fellow of the JSPS Postdoctoral Fellowship for Research Abroad, a postdoctoral fellow of Swiss Federal Institute of Technology, a research associate for the University of Tokyo, Faculty of Science, Department of Physics (Shimano lab). In 2011, he assumed the current position as an associate professor at the Department of Physics, Keio University Faculty of Science and Technology.



“sample preparation” – at these world-leading labs, which has proved to be a great asset for me as a researcher.

Setting the course of study and identifying suitable study themes as a researcher is an exhaustive task, isn't it?

Given the highly competitive world of researchers, I'm always thinking about how I can survive the competition. In this sense, it's my policy not to take up themes that are “in fashion.” If you jump at a theme “in fashion,” you will eventually find yourself nowhere in terms of achievements. That said, it's true that “terahertz light” is “in fashion today.” I know my remark sounds a bit contradictory. Yet, I can say I'm pursuing original research from my own unique approach.

By the way, at the Keio University Department of Physics, “reading original texts and making presentation” (students are required to read original papers in English – from every age and everywhere – and express their comments) is a compulsory subject for seniors. In this class, I join my students to learn how famous researchers of the past opened up their fields of study using their own strategies. To produce new ideas and approaches necessary for promoting research activities, following the footsteps of great figures of the past is the best shortcut. As such, I'm striving daily to produce breakthrough research achievements while learning strategies taken by our great predecessors.

What kind of research are you going to target in the future?

I believe that natural phenomena, though apparently complex, can be broken down into simple elements that could be explained by theories. I'd like to become the world's first to bring such “easy-to-understand theories” to light.

To refine and enhance experimental techniques is the best way to shed light on yet-to-be defined truths. Because experimental results contain a lot of clues to untangle complex natural phenomena, it's very exciting to use these clues to solve puzzles.

I'd like to continue to meet the challenge of yet-to-be-defined

physical property problems taking advantage of our world's top-class techniques.

How are you spending your free time?

From junior high school days up to now, I have been an active member of an amateur brass band, playing the tuba.

Many of my favorite pieces of music are marches. Many of them, for which I play the tuba, are simple yet moving. It's fun. I like things simple just as I do when it comes to work.

What aspects do you think are good about Keio University?

My first impression of Keio upon assuming my post was that everything was well organized and everyone was cooperating with each other and appeared very eager to seek the highest possible achievements both in education and research. Given the superb educational environment, student's levels of basic scholastic ability and appetite for learning are also very high, which makes me comfortable when learning and doing research with them. Synergistic effects of cooperation between teachers and students characterize Keio's academic environment, ensuring high quality research.

◎ Some words from students . . . ◎

● It's no exaggeration to say that most of us, the Watanabe lab students, joined the lab first and foremost because of Dr. Watanabe's attractive character. He is as gentle as well as very caring teacher. He assigns each one of us themes according to our individual ability and interest, and follows up exactly as should be. No wonder our lab has a very good and comfortable atmosphere for us all.

(Reporter & text writer : Madoka Tainaka)

For the full text of this interview . . .

<http://www.st.keio.ac.jp/kyurizukai>