

## President's Address at the 2019 Saitama University Entrance Ceremony

In this morning, the beautiful pale pink of cherry blossoms in full bloom and the soft fresh green of young leaves of the trees shine in harmony in this campus, as if they congratulate you. This is just "Saitama University All in One Campus" and an embodiment of diversity.

Out of 642 new graduate students in total, the 111 of them are from 21 overseas countries. I would like to express a cordial welcome to all of you on this pleasant day with a full of hope. And I do respect you for continuing study under constrained condition. In addition, I sincerely express warm congratulations to your families who have given support to you.

According to the message of Dr. T. Kajita, one of our alumni and the 2015 Nobel Physics Prize winner for the discovery of neutrino mass, the university is an entrance to the scholarly activity and the graduate school is a place of scholarly activity on a research basis. From this viewpoint, let me discuss some research-related matters that could be suggestive for you who start research at the SU Graduate School.

In the scientific community, the trend has been changing from "science for knowledge" in each specialty field to "science for future/science for society" in interdisciplinary fields. And with regard to research, in general, it has come to be pointed out that it is important for researchers to raise awareness of the issues on social involvement of researches. In other words, it is important to touch the question "What is your research for?", and to rethink about the meaning of your researches.

As for the social involvement of research, industry-academia collaboration research may come to mind immediately. However, as Dr. N. Miyano of Kyoto University points out, it is a problem that more "beneficial" research for companies is too much stressed in the industry-academia collaboration, and also that only the creation of short-term physical value is evaluated as an important research achievement (*IDE*, No.603, 2018). As we have been paying attention to the effectiveness of the facts, we have neglected to think the facts and only tried to know the facts. "What does the fact mean to us? " Such a question has been forgotten, and the understanding of facts is no more than a factual explanation, which has become a research. Even though human beings are stimulated by invisible things rather than visible ones, we have made the society with an emphasis on visible things. In research, it is recommended to keep in mind the importance of not only the knowledge but also the thinking.

Now that the SDGs are set as global and social issues, it is an idea to grasp the meaning of research in relation to the SDGs as a social involvement of research. As you know, the SDGs are the UN's Sustainable Development Goals adopted in 2015 to realize a sustainable world without poverty, disparity and climate change. Regarding this matter, Professor M. Kano of Okayama University states as follows in the magazine *Trends in Academics* (Vol.23, No.8, 2018). "SDGs have come to look like popular word, but there is also a response such as "I have not heard about SDGs yet" and "I have nothing to do with myself." However, from the recent abnormal weather, etc., such a question "Is the human society all right as it is?" seems common to all, and the SDGs could be understood as its answer." It would be good to see this situation as a chance to show the significance of

science and research in society through the SDGs.

By the way, the abnormal weather is an important issue even in the SDG's, but it is not well known that there are many discussions on the climate change research. For example, Dr. Freeman Dyson, mathematician and theoretical physicist, acknowledges that there is climate change, but regrets that any research has become fanatic and political without accepting any criticism. He says "People are confused by the numbers released by the climate model, and the research based on steady observation is more important. I am proud to be a heretic. The world always needs a heretic to challenge common sense." (M. Yoshinari, ed., *The Future of Humanity*, NHK Publications 513, 2017)

Dr. T. Watanabe, Professor Emeritus at University of Tokyo, also points out related criticisms scientifically in his book, *Global Warming Concerto: A fuss that breaks society* (Maruzen, 2018). Those are "There is no scientific basis that the increase in CO<sub>2</sub> is bad", "The earth has not been warming up in a critical way, and the resulting abnormal weather is not increasing", "Even if the global warming countermeasure cost of 80 trillion yen is used in Japan by 2030, only the effect of cooling the earth by 0.001 °C can be obtained." Dr. J. Akiyama, the mathematician who wrote the review of Dr. Watanabe's book (*Gakuto*, Vol.115, No.4, 2018), introduces the words of the physicist Richard Phillips Feynman: "If you don't believe it, you should refute it in debates. If you insist on your idea without listening to other criticisms, the potential of humanity would be kept in a small trap. Skepticism should be welcomed and discussed a great deal rather than feared." Here I recall the words of Dr. Tasuku Honjo, the 2018 Nobel Prize winner in Medicine and Physiology. "I don't easily believe in research. Only 10%, at most, of research papers published in *Nature* will remain as true papers after 10 years. It is my basics to be convinced by my own eyes and my own deep thinking."

After all, a series of basic actions such as questioning, thinking, and discussing are important in research. On this occasion of your becoming graduate students, why don't you start with questioning? As Albert Einstein says, "The important thing is not to stop questioning; curiosity has its own reason for existing."

Research is a repetition of challenge and failure aiming for a higher stage, and an act that you can't do without passion. Vigorous curiosity, strong desire, sharp observation and depthful insight of researchers are indispensable for causing serendipity in research. Lastly, in this regard, I introduce the words of SU alumni; Dr. Kajita and Dr. K. Komatsu, the 2016 Japan Cultural Merit for the research achievements on Yokai, that is a specter. They say, "Please open up your eyes and heart widely to prepare for when you encounter important things such as research subjects." and "Research is a painful but pleasant puzzle. Please find the opportunity to open your way and to be active in research."

Research at graduate school has a high degree of freedom. I do want you to challenge furiously on your researches with out-of-the-box thinking. I greatly expect your good research fight at Saitama University.

April 5, 2019

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