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Young Members Column

Naoya Matsumoto

Student, CHUO UNIVERSITY

I have received my bachelor's degree from Chuo University and I am doing research activities as a second-year master student at the same university, in the laboratory of foundation and underground structures. In this laboratory, we are working on research themes that can contribute to solving problems in practice, such as design, construction, maintenance, management, and disaster prevention, focusing on foundation and underground structures. Before the pandemic, I always made many field trips because I believe that it is important to see and feel things with my own eyes. The photo was taken at the Seto Ohashi Bridge during a field trip under the aegis of the Japan Society of Civil Engineers. On the picture I am located at the far end.

My research is focused on the rigidity and embedded depth of the earth retaining wall. I have applied an aluminum bars to model a pile in the ground. By using this apparatus, we can easily observe the slip surface in the soil. Therefore, we can observe the behavior of the retaining wall when it collapses, which cannot be reproduced in reality. This research may enable us to determine the embedded depth of earth retaining walls more economically.

The first IPA event in which I participated was the "12th IPA Press-in Engineering Seminar in Tokyo 2020". The current design method for earth retaining walls has a tendency to overestimate the embedded depth when applied to rigid steel pipe piles and hard ground conditions. My own research focuses on the embedded depth and rigidity of earth retaining walls, so I was glad to be a member and participate in the conference because I was able to get knowledge about the latest findings. I would like to acquire a wide range of knowledge so that I can contribute to the world as a civil engineer during the rest of my student life.

Yuna Sasaki

Student, CHUO UNIVERSITY

I am Yuna Sasaki, and I am a first-year master student at Chuo university in Tokyo. I received my bachelor’s degree in civil engineering at the same university. When I was in third grade of bachelor, I have experienced to study in Denmark at University of Southern Denmark (SDU) for two semesters.

The motivation for studying abroad was to become an international civil engineer. Nowadays, a number of construction companies extend their project overseas. Being inspired by the engineers who work abroad, I decided to study in the environment of many international students.

In the city I lived in, construction works to build railroad tracks of trams and stations have been carried out. Then I began to be interested in underground structures and made up my mind to study in this field, and now I belong to the present laboratory, specific to foundations and underground structures.

Now I study bearing capacity of the scoured bridge foundation. In recent years, along with heavy rainfall disasters, the damage of foundations due to scour has been increasing. This study focuses on the damages of foundations such as settlement and inclination due to scour. The aim of the study is to clarify the bearing capacity of foundation after the scour. To elucidate its mechanism, I perform vertical loading tests of scoured foundations with aluminum rods. The reason for using these aluminum rods is that they behave mechanically like dense sand and can be easily reproduced manually in any scour condition. This study will help to obtain the information for future emergency disaster operations of damaged river bridges.

IPA is a good stage for me to have opportunities to know civil technologies and exchange opinions for the future development in this field. I look forward to sharing my study in IPA in the near future.