



**Gunma University Department of
Environmental Engineering Science**

Concrete and Fire Eng. Lab.

Haruka Akasaka

ACI Student Forum, March 25th, 2018, Salt Lake City, UT, USA

Acknowledgements

Thank you for support !

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Gunma university

Aramaki Campus



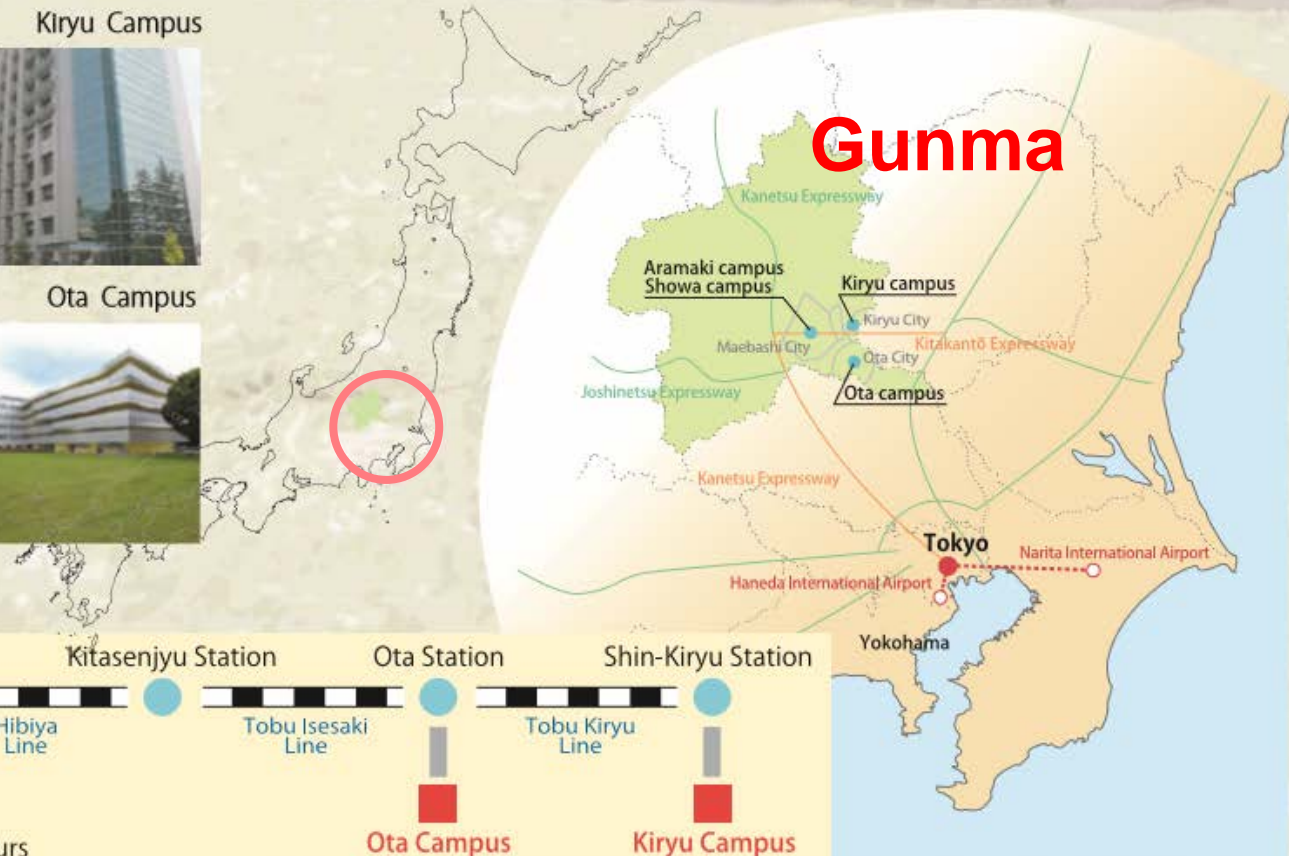
Kiryu Campus



Showa Campus



Ota Campus



- Gunma University is located in Gunma prefecture, which lies at the end of the Kanto Plain and at the foot of the Japanese Alps..

Our team



Haruka AKASAKA



Member



Yusuke AKUTSU



Masato MURAKAMI

Hinako ROPPONGI



Minori TANABU

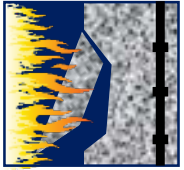
Advisor



Associate Professor, Dr.Eng. **Mitsuo Ozawa**
Department of Environmental Engineering Science
Concrete Engineering laboratory,

1. Laboratory Introduction

Gunma university



Concrete and Fire Eng. Lab.

Research interests are below:

- Thermal stress estimation in relation to spalling of HSC restrained with steel rings at high temperatures.
- Preventive effect on spalling of Ultra-high strength fiber reinforced Concrete using **Jute fiber** at high temperature.



Etc...

1. Laboratory Introduction



Gunma university

- We learned about **construction materials and reinforced concrete** structures in undergraduate school.
- After learning these subjects, we have chosen **concrete laboratory** at 3rd year undergraduate school in Gunma University.

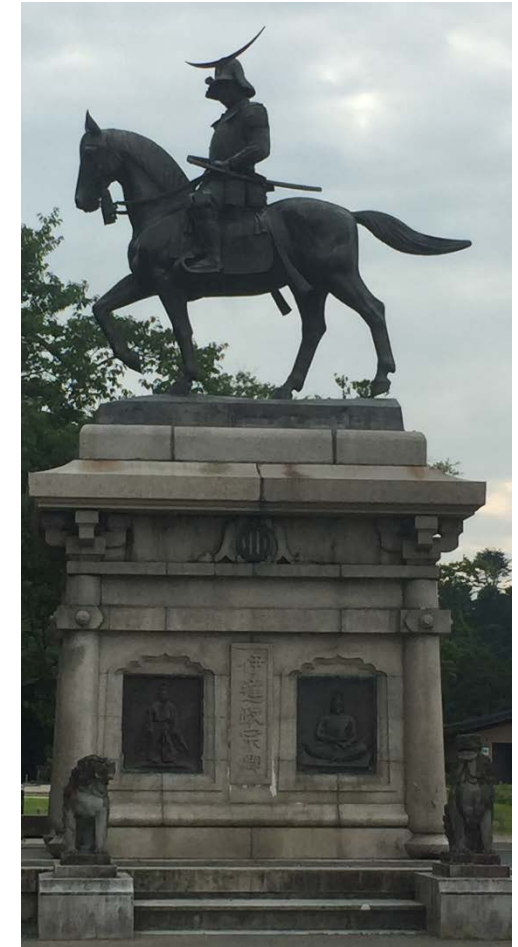


Symbol of our laboratory, 'DARUMA'

1. Laboratory Introduction



KOC2017 in **Sendai** (Miyagi Pref.)



Masamune DATE

- From our laboratory, we have participated in “**King Of Concrete 2017**”, a competition to make percussion using cement base materials, organized by **Japan Concrete Institute**.

1. Laboratory Introduction



Tuning of percussion



- Our laboratory members are doing research about improving the fire resistance and spalling of high strength concrete using **Jute fiber**.
- So, we derived our idea from this research to manage the pitch and strength of designed cement based percussion.

1. Laboratory Introduction



We gained the **first place!**

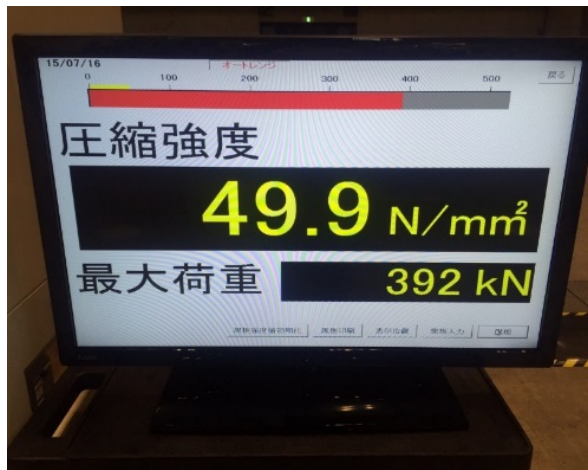
From this national competition, we got good opportunity to explore our ideas and had experience of participating and **winning the “best poster award”**. This had good opportunity for us.



Our poster

2. What is **KOC**-king of **C**oncrete?

- Convention that each university competes for performance of concrete.
(Held by **Japan Concrete Institute**.)



KOC2015 : Mechanical properties

Cylindrical specimens were compression tested and competed for accuracy against **50 N/mm²**.



KOC2016 : Concrete spinning top

Made **spinning top with cement** and competed for rotation time and design.

2. What is **KOC**-king of **C**oncrete?



- And then, we made percussion instruments with concrete (**Concretephone**) and played at this year's **KOC2017**.



We won the top position among 28 teams by poster!





Thank you for kind attention.
