



2020 Laboratory introduction

Kusaka Laboratory

Waseda university, Department of mechanical engineering

School creative science and engineering

Graduate student in 1st master course Mahoko Nakatsuka

+ About us

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Laboratory view(1942)

2nd from the right : Professor Torajiro Watanabe
Mr. Kusaka is the 6th professor.



Staff

←click to web site for 2019 staff

- Professor Jin Kusaka(Research Director)
- Associate Prof. **NEW!** Akane Uemichi(Energy system)
- Associate Prof. Sok Ratnak(Gasoline engine)
- Instructor Kyohei Yamaguchi(Hybrid)
- Instructor Beini Zhou(Diesel engine)
- Visiting Prof. Takao Fukuma(Control・Catalyst)
- Visiting Prof. **NEW!** Takahiro Noyori(Vehicle testing)
- Visiting Assoc. Prof. Norihumi Mizushima(Vehicle model) **NEW!**
- Part-time instructor Kunikazu Ishiwatari(Car design)
- Secretary Shoko Suzuki・Yumi Ishii・Toshie Imai
- Doctoral course 5 **NEW!**
- Master's course 23
- Bachelor 4th 14

○ Career(Master)

HONDA(2)・TOYOTA・KOMATSU(3)・JXTG・AVL・UD Tracks・TOSHIBA

○ Career(Bachelor)

KOMATSU・JR Central・J BUS・SMBC NIKKO・Graduate School(6)



Cooperation

ME Major Kaneko Lab.
Professor
Shigehiko Kaneko
(Driver control)



+ Laboratory

- Laboratory

Main room 58-226

Under ground room 63-B2

- Server room 61-363

- Engine bench 58-1F 1st~6th engine bench



63-B2 Laser measurement room

Single cylinder engine room

Multi cylinder engine room

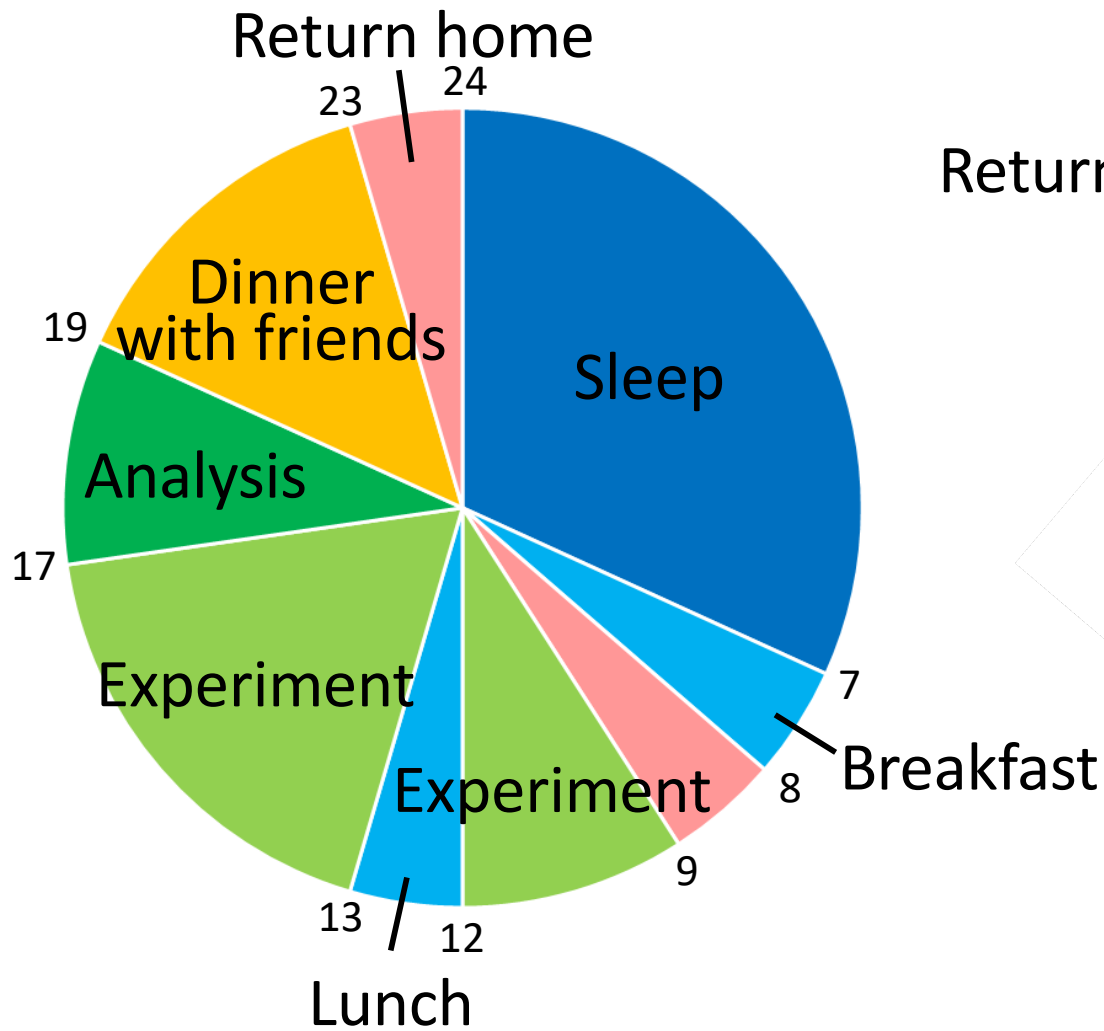


**✂ We never go to HONJO campus except for 1 group
when they do experiments.**

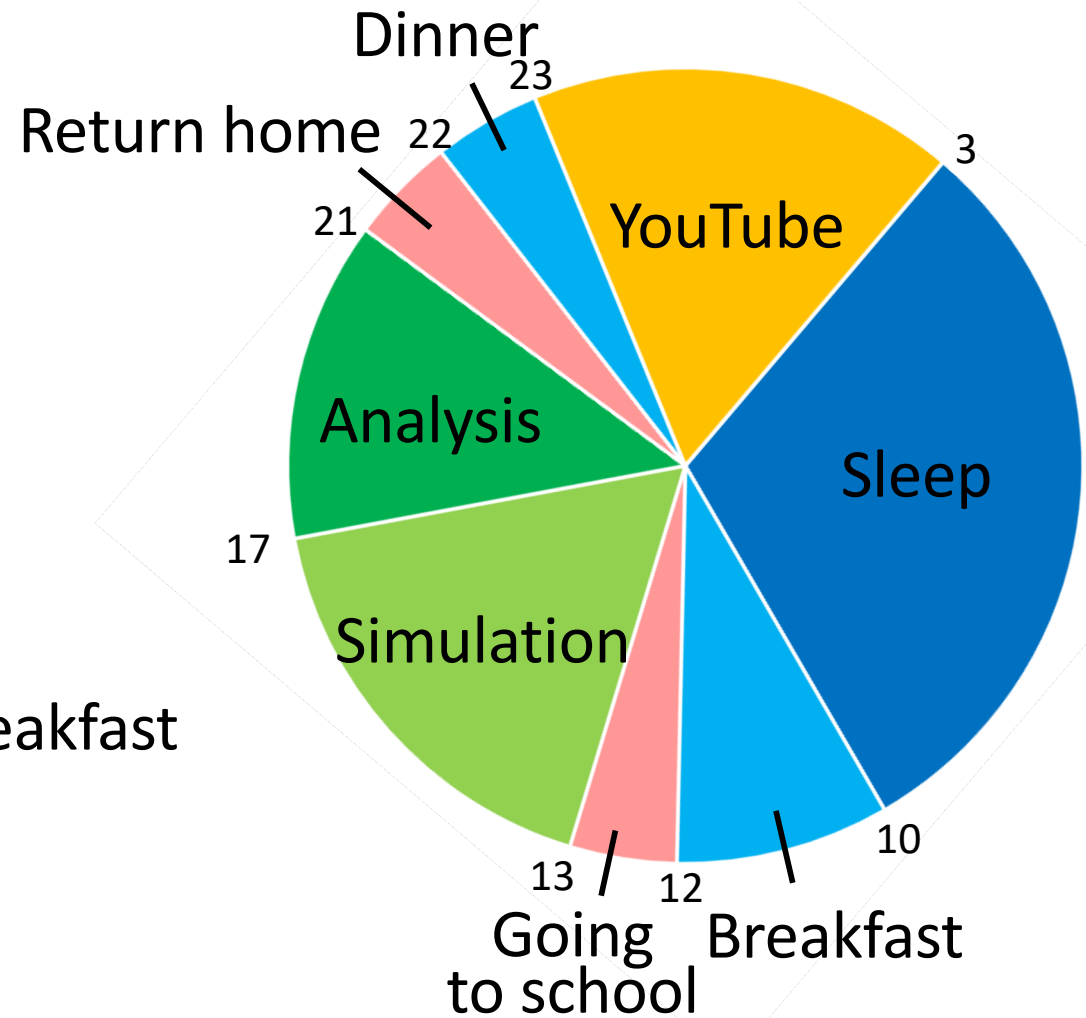
+ A student's day

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Student A



Student B



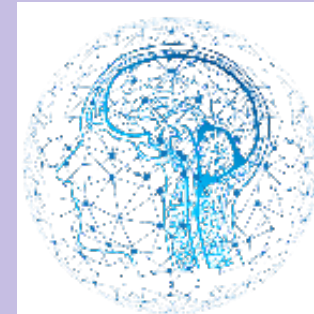


Research group [←click to web site](#)

Vehicle model



AI



Combustion



Catalyst



Driver model

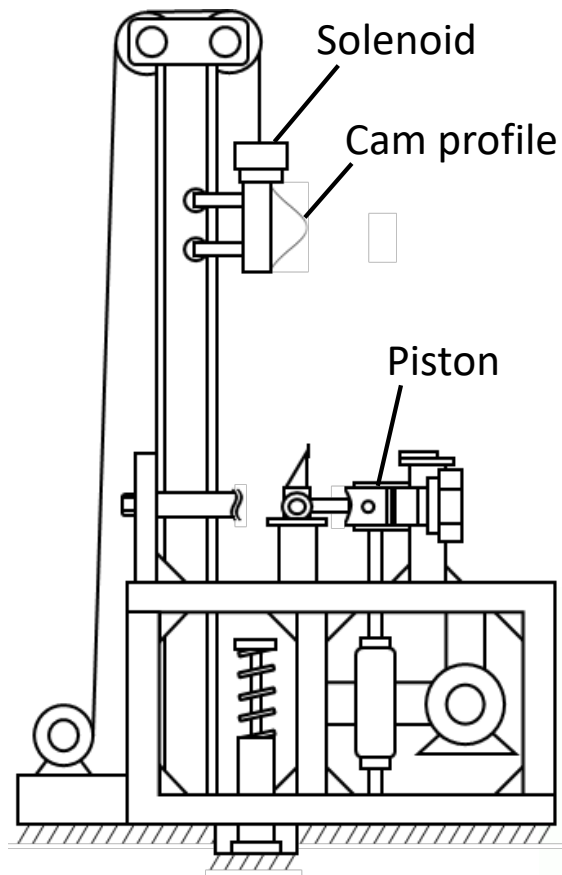
Design

+ My research



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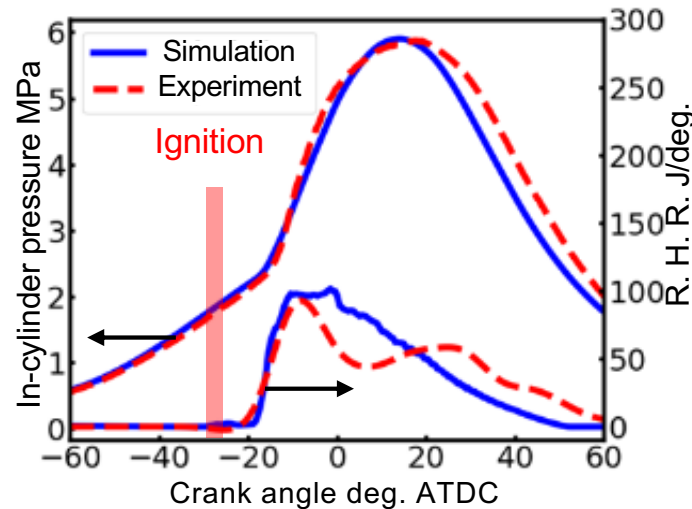
Rapid Compression and Expansion Machine



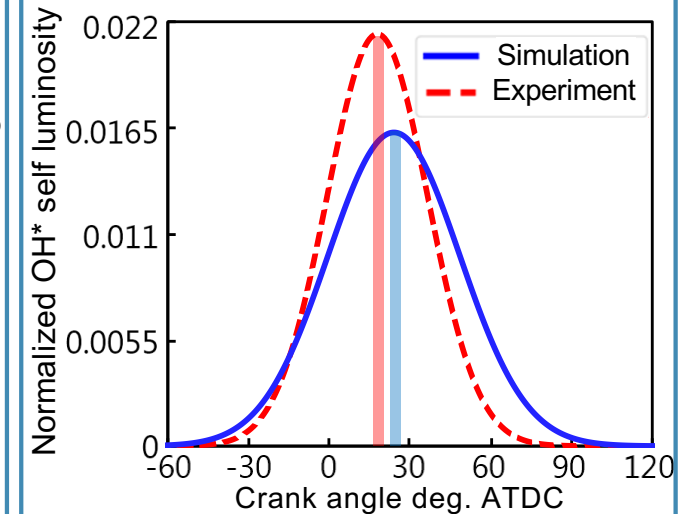
Machine specifications

Bore × Stroke mm	125 × 140
Displacement cc	1718
Compression ratio	12

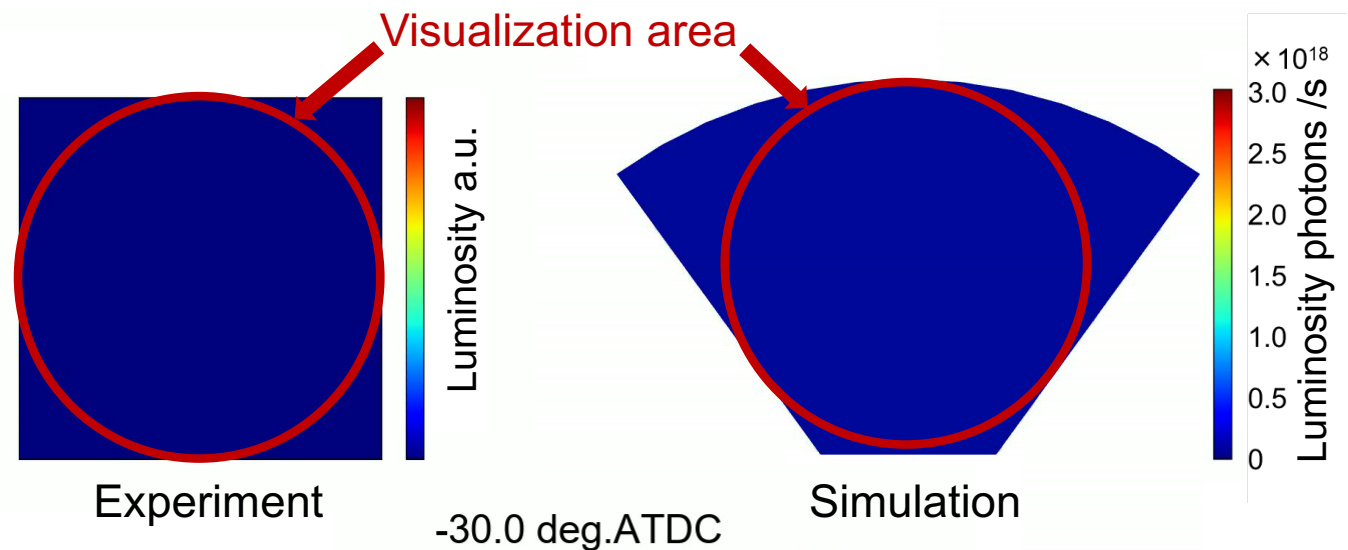
Pressure and heat release rate



*PDF self luminosity



OH* self-luminosity



+ The attractiveness of the Kusaka lab.

【Research relevance】

- ✓ Ideal for individuals who would like to actively participate in research related activities.
- ✓ Ideal for individuals who would like to know in detail about automobiles.
- ✓ Automobile equipped with our research techniques can be found running on the city roads.
- ✓ Experiments & simulations can be conducted with laboratory equipment.
- ✓ Study the concepts of thermal and fluid mechanics.
- ✓ Since there is no core time, research can be carried out with the team's pace.

【Job hunting】

- ✓ Can be an expert in automotive business world.
- ✓ Can get real stories about industries from industrial PhD students.
- ✓ Discussion about job hunting with industrial experts.
- ✓ Can participate in domestic and foreign internships.

【Life related】

- ✓ The professor is very cool!!!
- ✓ The professor has great sense of humour!!!
- ✓ In case of difficulties, the professor will come to rescue!!
- ✓ Friendly relationship between seniors and juniors!
- ✓ There are many events to participate inside and outside laboratory!
- ✓ If you fail to get a job, the professor will help you get one!! Be sure to join the company.



+ Basketball ▪ Camp ▪ Events

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Basketball tournament



Camp at KARUIZAWA



Drinking party



Camp at HOKKAIDO

+ Visit to the Kusaka Laboratory

Date (2020)	Jan. 7 (Tue.)	Jan. 10 (Fri.)	Jan. 15 (Wed.)
Time	12:20~12:50	12:20~12:50	12:20~12:50
Meeting place	63-424	61-506A	61-506A

- ✓ Advance reservation is not required
- ✓ E-mail : public_relations@kusaka.mech.waseda.ac.jp
(Kusaka Laboratory M1 Mahoko Nakatsuka)
- ✓ HP : <http://www.f.waseda.jp/jin.kusaka/index.html>

