

Poster Session

Period: Tuesday, November 17 through Thursday, November 19

Place: Center Lobby, 10F

Opening Hours

Tuesday, November 17 during PM Networking Break

Wednesday, November 18 ditto

Thursday, November 19 during AM Networking Break

List of Participants with Research Contents

Poster Session Chair Prof. Yuh-Yih Wu (National Taipei University of Technology)
Poster Session Co-chair Prof. Koji Yoshida (Nihon University)

Tuesday, November 17

1. School of Engineering, Osaka Sangyo University Kazuhide Togai

Various models have been applied for internal engine development. A 1D model and reduced order models depending on required frequency have been developed in our laboratory. Those models have been applied for engine NVH analysis, engine system optimization and engine management. A linear engine torque model is more appropriate for system optimization purposes in some cases.

2. Motor Transport Institute Małgorzata Kalisz

The effect on thin nitride coatings on mechanical and high temperature corrosion properties of titanium alloy surface

3. Graduate School of Science & Technology, Doshisha University Ryosuke Inagaki

Visualization of Cavitation inside Nozzle Hole and Behavior of Liquid Jet

The objective of this study is to clarify the effect of cavitation phenomena on the spray atomization. In this report, the cavitation phenomena inside the nozzle hole was visualized by using enlarged nozzles in order to clarify the effect of length-to-width ratio of the nozzle hole on cavitation and on the behavior of injected liquid jet.

4. Graduate School of Science & Technology, Doshisha University Minoru Hanasaki

Large Eddy Simulation of Diesel Spray using WAVE-MTAB model with OpenFOAM

The objective of this study is to develop LES analysis method to predict diesel spray. In this study, WAVE-MTAB model is incorporated to OpenFOAM. WAVE and MTAB model is used for the primary and secondary breakup, respectively. LES analysis of non-evaporative spray is conducted by using OpenFOAM.

5. Motor Transport Institute Marcin Grobelny

Influence of graphene monolayer on structural, mechanical and high temperature corrosion properties of thin CVD and PVD coatings formed on titanium alloys used as engine valves

6. Graduate School of Natural Science and Technology, Okayama University Daisuke Kawakami

CO₂ Concentration Measurement nearby Spark Plug by Infrared Absorption Method.

In this study, high CO₂ concentration near spark plug is measured by infrared absorption method in a compression-expansion machine with EGR ratio 0 to 40%. At the spark time, measurement result had an error within 10% with preset value.

7. Air Force Institute of Technology Joseph Aussere

Spectroscopic Analysis of In-Cylinder Gases

A small two-stroke SI engine was modified to allow optical access for absorption spectroscopy. FTIR was employed to measure gas temperatures in-cylinder.



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8. Graduate School of Natural Science and Technology, Okayama University Shota Hashimoto
Combustion Diagnostics Using Timer-Series Analysis of Radical Emissions in a Practical Engine.
The spark plug type sensor that comprised of a spark plug with optical fiber was developed. The objective is to analyze the radical emissions of flame in engine cylinder through time-series spectroscopic measurements for combustion diagnostics.

Wednesday, November 18

9. Graduate School of Science & Technology, Doshisha University Shoichi Fukuchi
Investigating the Cause of Late Combustion in Diesel Engine
The purpose of this study is the improvement of degree of constant volume by shortening late combustion period. Therefore, this report investigates cause of late combustion by evaluating mixture formation and combustion process. Visualization experiment of mixture and combustion was conducted by using rapid compression and expansion machine (RCEM).

10. Graduate School of Natural Science and Technology, Kanazawa University Masahiro Sasao
Estimation of charge amount on ethanol droplet

11. Air Force Institute of Technology Joseph Aussere
Scaling of Loss Mechanisms in Small Two Stroke Engines
Research on the loss mechanisms driving the decrease in fuel conversion efficiency from engines larger than 10 kW to those smaller than 1 kW.

12. Graduate School of Science & Technology, Nihon University Masanori Yamada
A Study of Streamer-discharge-assisted HCCI Combustion Using an Optically Accessible Engine

13. Graduate School of Science & Technology, Nihon University Munehiro Matsuishi
Experimental and Numerical Study of HCCI Combustion Using Cooled EGR

Thursday, November 19

14. The Graduate School of Engineering, Hiroshima Institute of Technology Yuki Hosokawa
Dynamic behavior of unburnt diesel sprays under no-evaporation and evaporation conditions were investigated by dual nano-spark shadowgraph photography method. In the present study, detailed information of the temporal behavior not only of the outer boundary but also of the inner core region in the diesel spray was obtained.

15. Graduate School of Science & Technology, Nihon University Shota Yanagisawa
In this study, the flame behavior was attempted to control by the electric field. It was clarified that the flame propagation of homogeneous propane-air mixture under application of non-uniform electric field. A thin air layer formed at the bottom flame front, so that the heat loss reduced.

16. Universiti Malaysia Pahang Ftwi Yohannes Hagos
Effect of Engine Speed and Air-fuel Ratio on the Combustion of Methane Enriched Syngas in Direct-injection Spark-ignition Engine

17. The Graduate School of Engineering, Hiroshima Institute of Technology Kentaro Takatani
A new technic to measure the propagating flame precisely by using densely installed multiple ion-probes has been developed. This system targets the high-intensity and pulsatile combustion, including knocking in gasoline engine. In the present study, basic tests for applying this technic on 2-stroke gasoline engine were performed.

18. Graduate School of Science & Technology, Nihon University Masayuki Yamazawa
A Study on the Practical Application of Cellulosic Liquefaction Fuel for Diesel Engine
This study is aiming for the practical application of Cellulosic Liquefaction Fuel for diesel engine. The results of these tests, engine performance and exhaust gas emissions of CLFs were almost equivalent to light oil. Therefore, CLFs mixed light oil can be practically used as alternative fuel.



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19. National Taipei University of Technology

Yung-Hsiang Hsu

An Experimental Investigation of Butanol-Gasoline Blend Fuel with Different Fuel Injection Pressure
Butanol is deemed as the potential alternative fuel. In this paper, a spray observation platform with a high speed camera is built up to observe the butanol-gasoline blend fuel atomization, and then the engine experiments are executed.

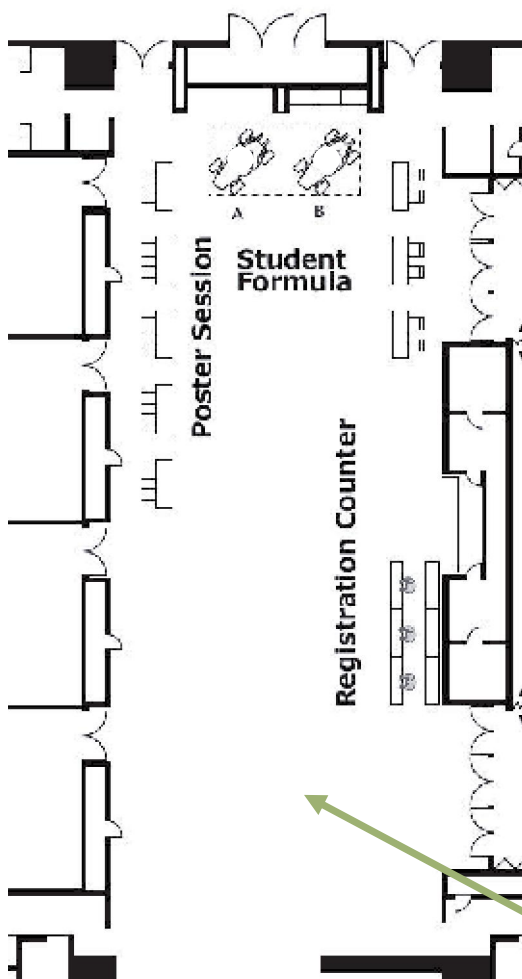
20. Graduate School of Science & Technology, Okayama University

Nobuyuki Kawahara

Visualization of Spark Discharge in Spark-Ignition Engine Under Lean-burn Conditions

The objective of this study is to investigate the formation process of initial flame in SI engines under lean-burn conditions. Spark discharge and flame propagation were simultaneously visualized in a compression-expansion machine (CEM) using two-high-speed cameras.

10F



Student Formula Japan

A. Osaka University



B. Doshisha University

