Research Opportunities

For Undergraduate Students
Each year there will be research projects available. The list of projects will be provided in the department by January every year. Students can discuss project details directly with the faculty members in charge.

For Postgraduate Students
Students with 2.75 GPA or more are encouraged to contact faculty members about research opportunities and scholarships. Research projects can be on-going projects or sponsored projects.

For Exchange Students or Visitors
CERL have several visitors and exchange students throughout the year. There are professors, researchers, postgraduate students, undergraduate students and high school students from all over the world.

Cooking Burner Testing

Commercial Activity

CERL is pleased to serve commercial clients based on their requirements. CERL has over 25 years experience in scientific and technological research activity, testing certificate services, training and seminars. Our clients and sponsors are both private and government sector. Projects can be scheduled for one week or up to 2 years depending on the project requirements. Potential clients, who are interested in collaborating with us, are welcome to discuss possible projects. Please feel free to contact us with any enquiry.

Contact CERL

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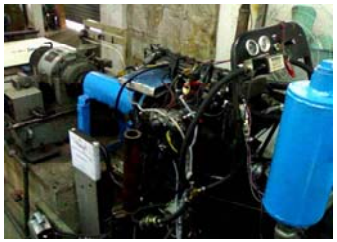
King Mongkut's University of Technology Thonburi

Combustion and Engines Research Laboratory (CERL)

http://cerl.kmutt.ac.th



Department of Mechanical Engineering
King Mongkut's University of Technology

About CERL

Vision
Determined to be at the forefront of technology and research in combustion science.

Mission
To understand combustion characteristics in order to improve the thermal and combustion efficiency and to reduce total emissions and greenhouse gases.

CERL Introduction
Combustion and Engines Research Laboratory (CERL) focuses on the design, analysis and development of both external combustion devices (e.g. combustors, furnaces, cooking stoves, incinerators, etc.) and internal combustion engines (e.g. spark ignition engines, compression ignition engines, and innovative engines for conventional and alternative fuels). The research work performs both experiments and mathematical modelling including the related energy policy research.

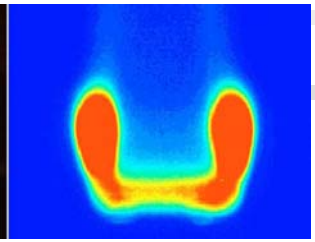
Keywords (including but not limited to)
Multiphase flows, liquid atomization and combustion applications including internal combustion engines, conventional and porous combustors, electrohydrodynamics and electrostatic applications, emphasizing optical diagnostic techniques such as conventional visualization, particle image velocimetry (PIV) and laser-induced fluorescence (LIF), energy policy for transportation in Thailand, alternative fuels.

Research Topics

Fundamental Research
- Alternative Fuels (Biogas, Natural Gas, Ethanol, Biodiesel and Hydrogen)
- Coal Combustion & Gasification
- Combustion in Engines
- Combustion Augmentation of Fuel by Porous Media
- Combustion Modelling & Simulation
- Heat Transfer Enhancement in Furnaces by Porous Media
- Laser-based Optical Diagnostics for Non-Reacting & Reacting Flows
- Physico-Chemical Properties and Combustion Chemical-Kinetics of Fuels
- Sprays & Atomization

Industrial Research
- High Performance Burners & Combustor
- Domestic Gas Burners
- Engine Control Systems
- Fuel Injection Control Systems
- Gas Turbine Nozzles
- Modified Alternative Fuel Engines
- Biodiesel Engines
- Diesel Dual Fuel (DDF) Engines
- Ethanol SI and CI Engines
- Bi-fuel Engines (Natural gas & liquid fuels)
- Porous Burners

Diffusion Flame Image



OH LIF Image

Available Facilities

For Testing of Engine Performance and Emissions
- Engine Dynamometers
- Fuel and Air Flow Rate Meters
- Flame Ionization Detector (FID) for HC
- Chemiluminescence Detector (CLD) for NOx
- Portable Multi-Gas Analyzers - NDIR and Electrochemical cell
- High Performance Liquid Chromatography (HPLC) for Aldehyde

For Fundamental Combustion Research
- Liquid Density Meter
- In-cylinder Pressure Measurement System
- Particle Image Velocimetry (PIV)
- Laser Induced Fluorescence (LIF)

Portable Gas Analyzer

Liquid Density Meter

Flame Ionization Detector

HPLC