Feedstock to Tailpipe Fuels Analysis

Research Areas

- Biofuels production, utilization, and impact assessment
- Fuel properties characterization
- Combustion performance and emissions analysis including greenhouse gases
- Novel low temperature and dual-fuel combustion
- Catalytic exhaust aftertreatment
- Additive Manufacturing for ICEs and Waste Heat Recovery

Single-cylinder engine test cell quantifies trends, performance, and emissions of various fuels (petroleum/bio) and blends

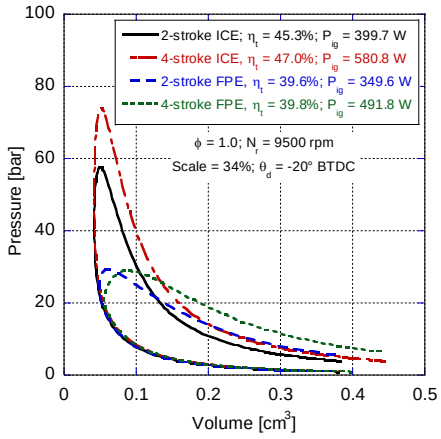
ASTM laboratory characterizes fuel properties ensuring compliance with industry standards

Collaborators and Funding

Multiple researchers in the departments of Chemical & Petroleum, Civil Environmental & Architectural Engineering. Colleagues at Wichita State and Kansas State University. Prior Support: U.S. Departments of Transportation & Energy, NASA, Kansas Soybean Commission, and Industry

Equipment

- Direct injected CI engines connected to AC dynamometers
- Bosch MS15.1 ECU and common rail fuel injection (40-200 MPa)
- Brooks thermal mass flow controller (dual fuel operation)
- Kistler in-cylinder pressure transducers
- GC, GC-MS, AVL FTIR, AVL Smoke Meter
- ANL GREET, novel 0-D heat release programs



Scaled two- and four-stroke internal combustion engine (ICE) and free piston engine (FPE) simulations

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