Experimental Investigation into Biofuel Spray Characteristics

Objective

• Study physiochemical properties effect on spray characteristics with different biofuel
• Provide the information of spray characteristics of modern injection system for validation of CFD code
• Fundamental study on laminar flame mechanism used to develop numerical combustion model

Experimental Setup

• Composed of high pressure vessel, fuel injection system, and image acquisition system
• Working pressure up to 110 Bar, highest initial gas temperature > 500°C
• Camera speed up to 1,000,000 fps with high resolution
• Multiple injector holders for different optical diagnostics

Methods

• 3D Phase Doppler Particle Analyser
• Schlieren/Shadowgraph
• Mie scattering

Publications

2. Li, Y. et al., Comparative Experimental Study on Microscopic Spray Characteristics of RME, GTL and Diesel, 2010, SAE paper 2010-01-2284