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2017 8 19 9 18

LIF

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9 18

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NEDC(New European Driving Cycle)

PN(Particle Number)

PN

PN

PN

PN

PN

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LIF

PN

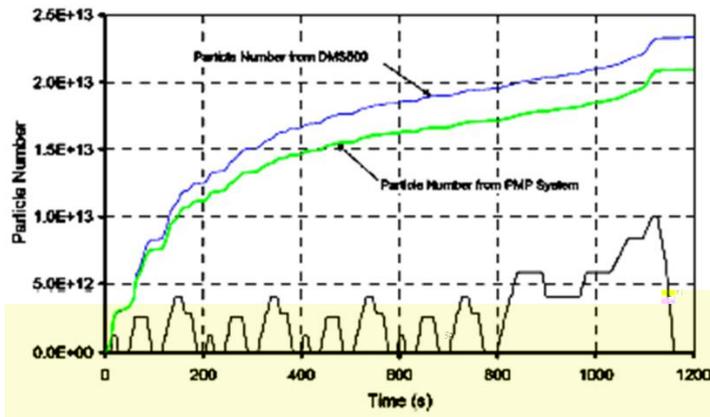


Fig 1. NEDC particle number results for PMP and DMS500 systems

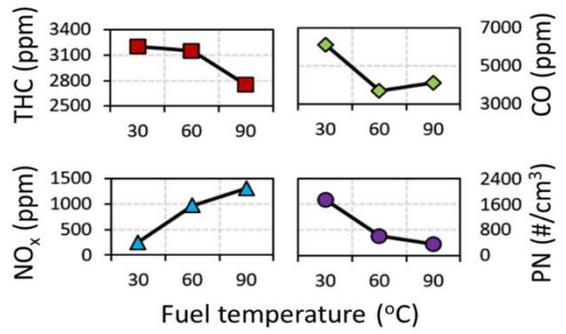


Fig 2. Emissions under different fuel temperatures

Orifice)

VCO(Valve Covered

Delphi

VCO

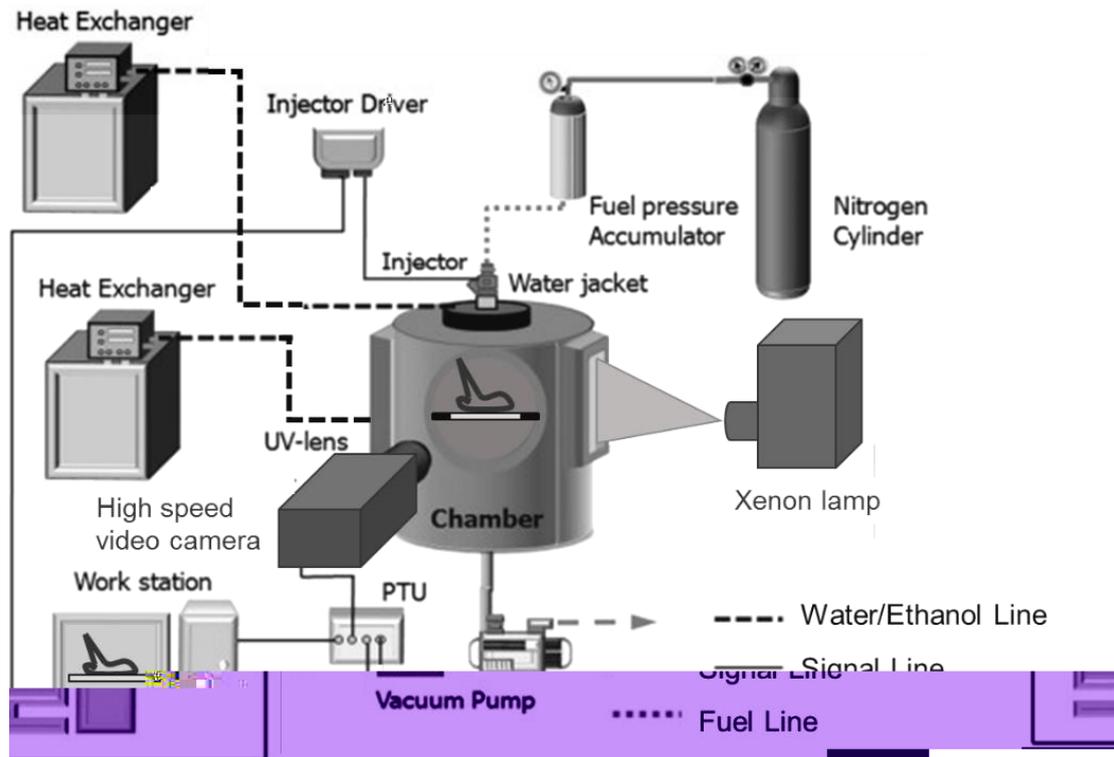


Figure 3. Experimental setup for spray imaging

Table 1. Experimental condition for spray imaging

Nozzle	Delphi single-hole VCO nozzle
Nozzle Hole Diameter [mm]	0.2
Fuel	n-Hexane
Injection Pressure $P_{inj}$ [MPa]	15
Injection Duration $ID$ [ms]	1.5
Fuel temperature [°C]	25, 90
Plate temperature [°C]	-30, 0, 20
Ambient Pressure $P_{amb}$ [kPa]	40, 80, 120, 160, 200
Ambient Temperature $T_{amb}$	Room Temperature
Impingement distance [mm]	50

**LIF**  
**LIF**

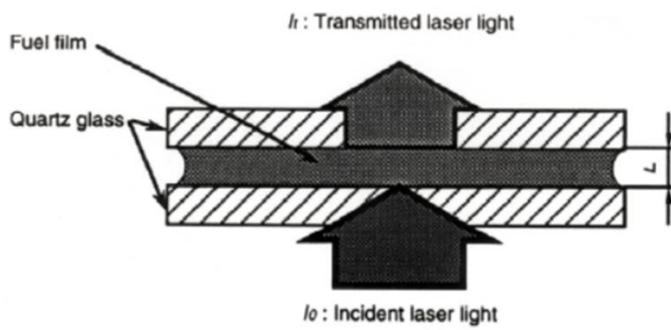


Fig 4. Principle of LIF

$$I_f = Q \cdot I_0 \left( 1 - e^{(-\varepsilon \cdot C \cdot L)} \right)$$

$I_f$ :  
:  
 $Q$ :  
 $C$ :  
 $I_0$ :  
 $L$ :

$$I_f = Q \cdot I_0 \cdot \varepsilon \cdot C \cdot L$$

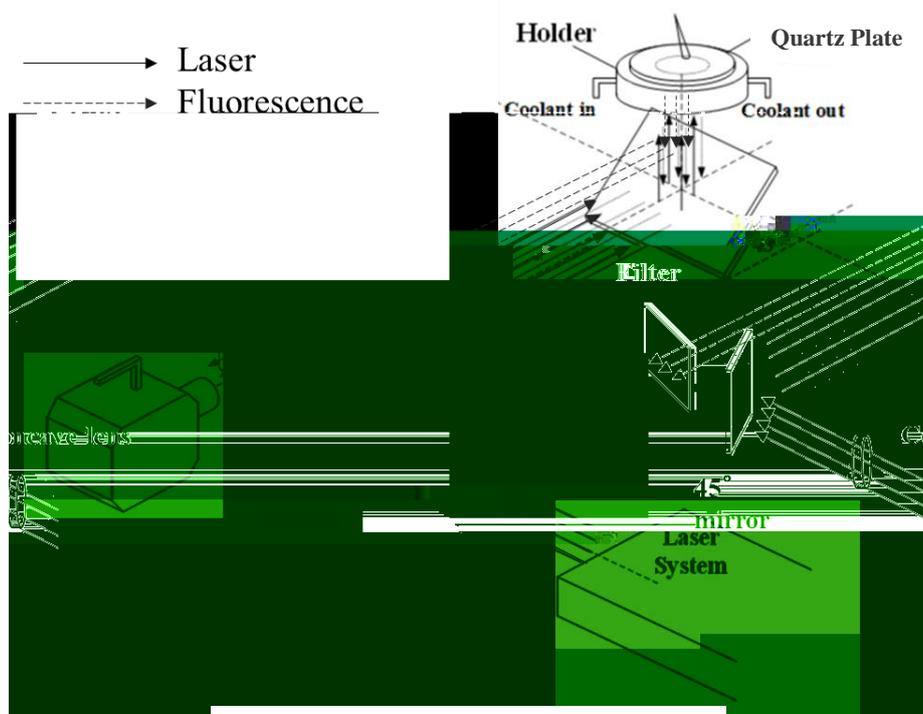


Fig 5. Experimental setup for LIF

Table 1. Experimental condition for spray imaging

Nozzle	Delphi single-hole VCO nozzle
Nozzle Hole Diameter [mm]	0.2
Fuel	n-Hexane

Injection Pressure $P_{inj}$ [MPa]	15
Injection Duration ID [ms]	1.5
Fuel temperature [ ]	25, 90
Plate temperature [ ]	-30, 0, 20
Ambient Pressure $P_{amb}$ [kPa]	40, 80, 120, 160, 200
Ambient Temperature $T_{amb}$	Room Temperature
Impingement distance [mm]	50
Tracer fuel	Fluorobenzene

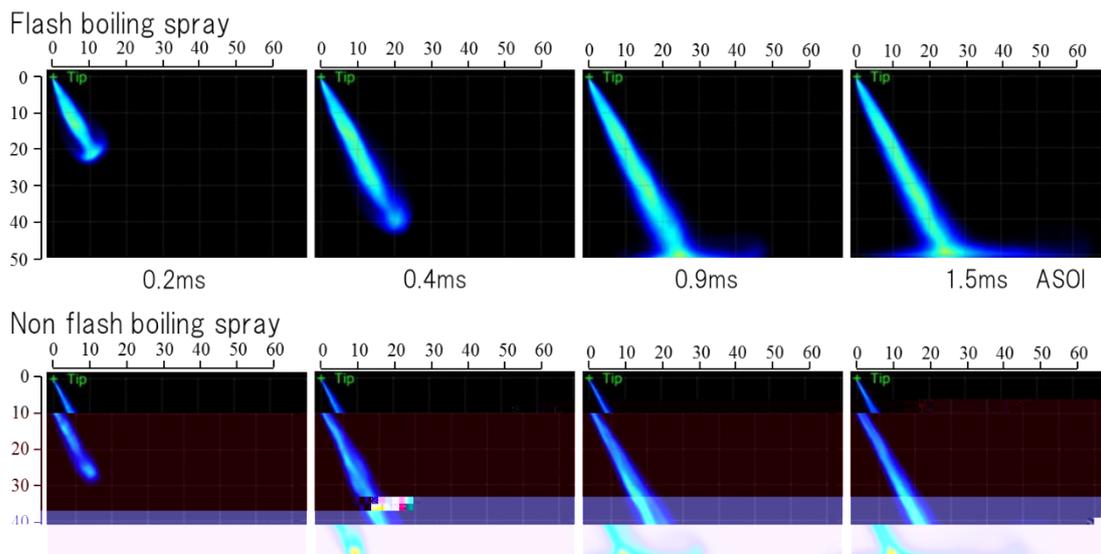


Fig 6. Spray image

Wall impingement

Injection duration

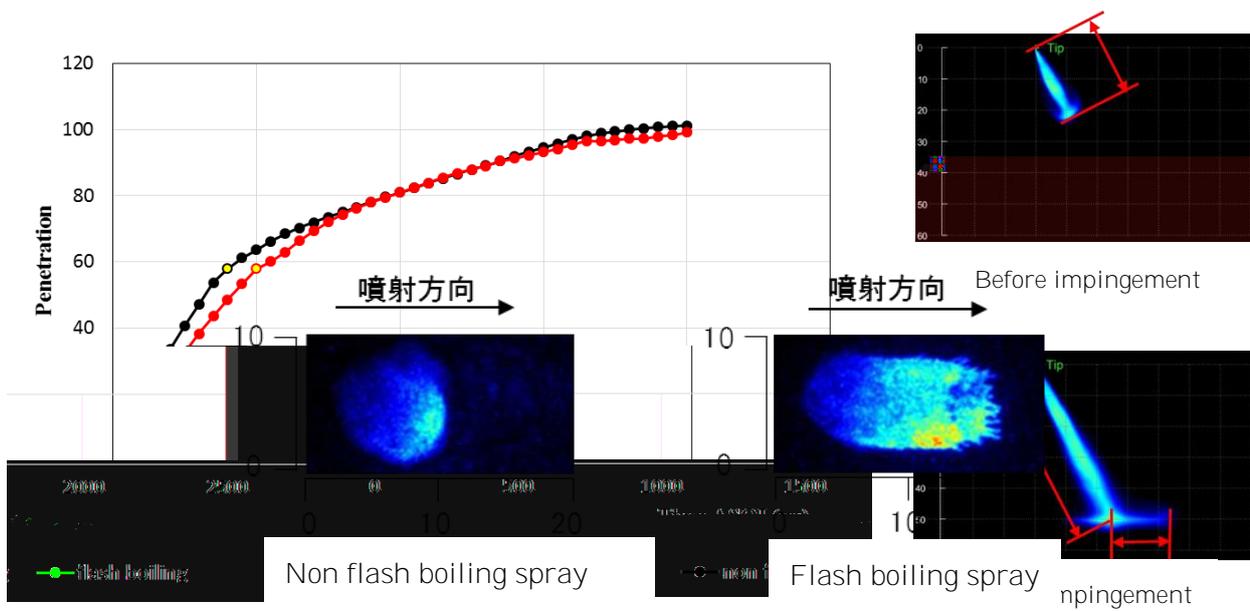


Fig8. Result of fuel film image (5.4ms ASOI)

LIF

