Enabling High Efficiency Low Temperature Combustion by Adaptive In-Situ Jet Cooling

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Poster **P-12**

Leverage the wisdom of
Diesel, Otto, and Watt

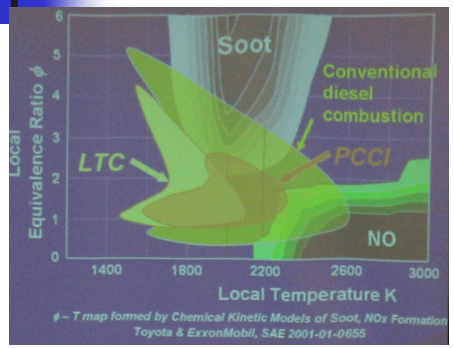
P12

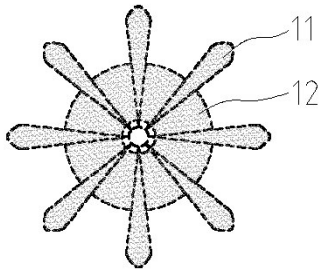
Key Enablers:

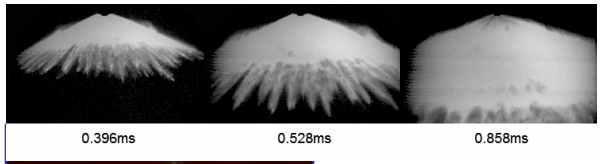
1. ***Dual-fuel injector (dual spray patterns, variable spray angles)***
2. ***Adaptive mixed-mode combustion***

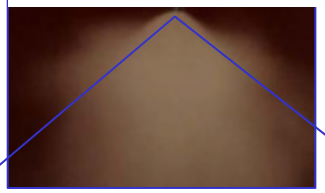
Path: ***New jet structure, complete fast lean burn***

Gains: ***High Efficiency, Low NOx, PM, HC, CO***

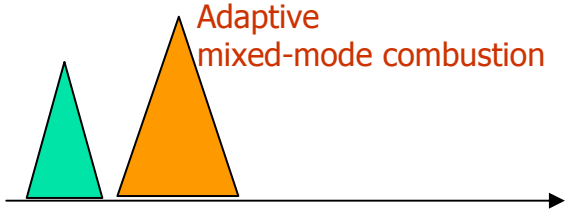






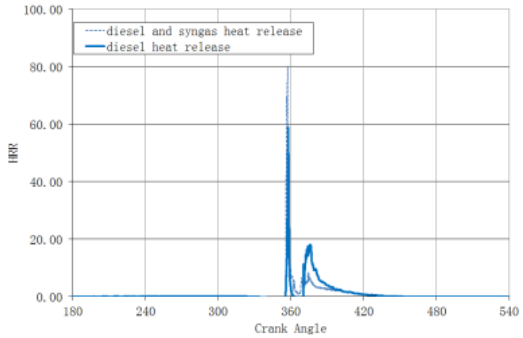


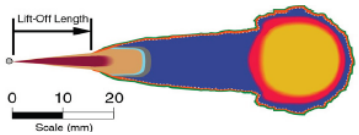
Low T zone by evaporation

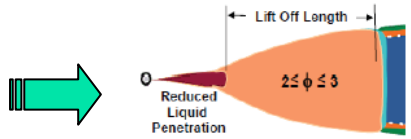


Variable Orifice fuel injector
Hou [2011, SBIR Report]

Lift off length







Dec's model [SAE Paper 970873]

Stanton [2010 USCAR]