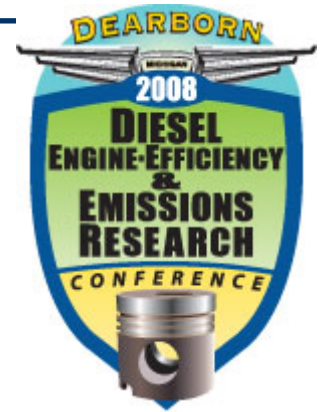


## Modeling the Effects of Steam-Fuel Reforming Products on Low Temperature Combustion of n-Heptane

**Nigel N. Clark, Francisco Posada (presenter)**

Center for Alternative Fuels, Engines & Emissions (CAFEE)  
Department of Mechanical and Aerospace Engineering  
West Virginia University  
Morgantown, WV

**John Pratapas, Aleksandr Kozlov; Martin Linck; Dmitri Boulanov**  
Gas Technology Institute  
Des Plains, IL



- The problem:
  - Premixed LTC (HCCI) Ignition controlled by combustion kinetics.
  - Changes in load (Equivalence Ratio) affects the combustion phasing.
- The Proposed Solution:
  - Control over in-cylinder mixture composition is the proposed method to address the LTC controllability problem.
  - It is proposed the use of a secondary fuel with different autoignition characteristics. On-board produced by Steam-fuel reforming technology
- Our work:
  - The reformed gas (RG) mixture composition, at different reforming temperatures, was experimentally determined using n-heptane as base fuel.
  - The effects of blends of base fuel (n-heptane) and fuel reformed products on the LTC combustion process were investigated.