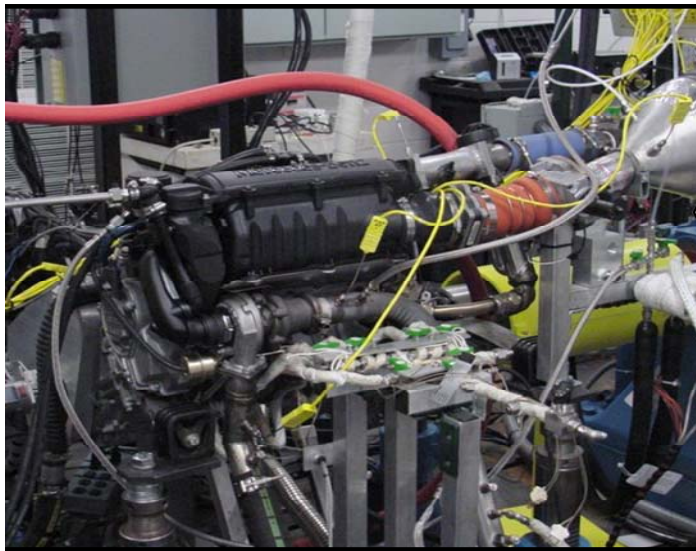


Unregulated Emissions from High-Efficiency Clean Combustion Modes – ORNL- FEERC

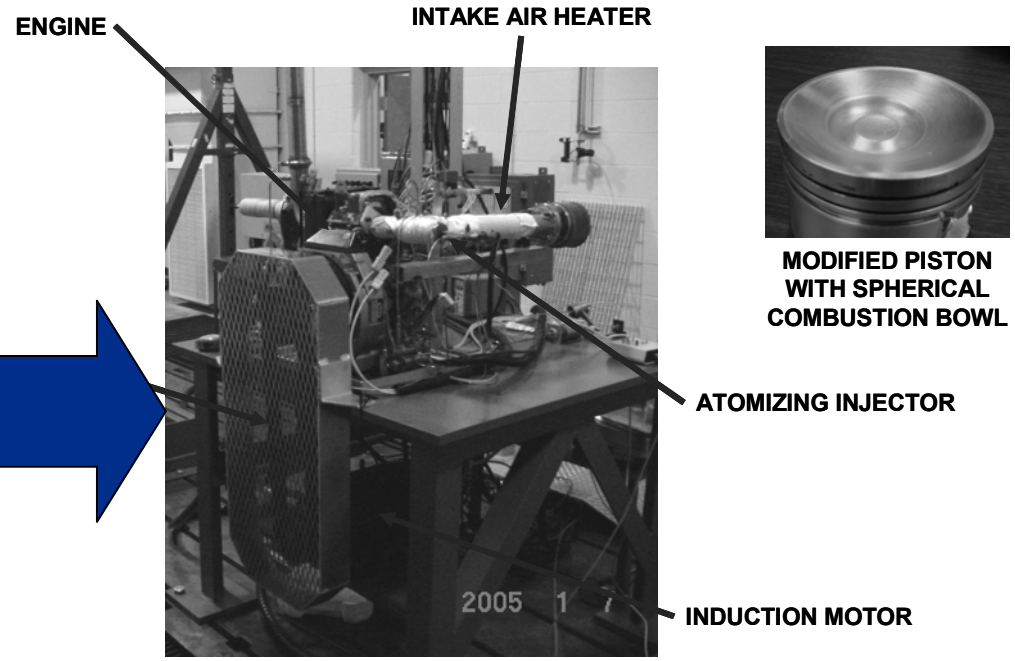
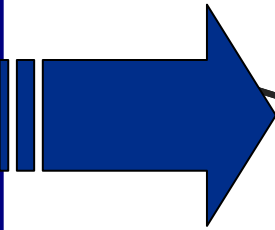
J. Storey, S. Lewis, E. Schuette, S. Sluder, R. Wagner, S. Eaton, J. Szybist, and J. Parks



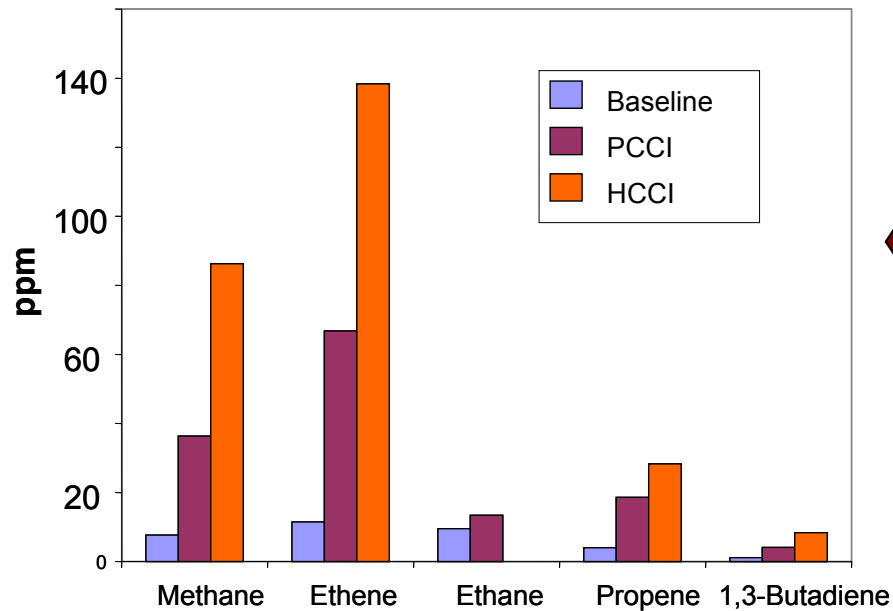
Measurements at PCCI vs. baseline
(production calibration)
Data at 1500 rpm, 2.6 BMEP
Reduces NOx by 90% and PM by 70% relative to baseline

HCCI: at same IMEP as PCCI

- NOx very low (2-12 ppm)
- PM, 0.8 - 5 FSN
- CO, 1300-3300 ppm
- HC, 2500-5000 ppm

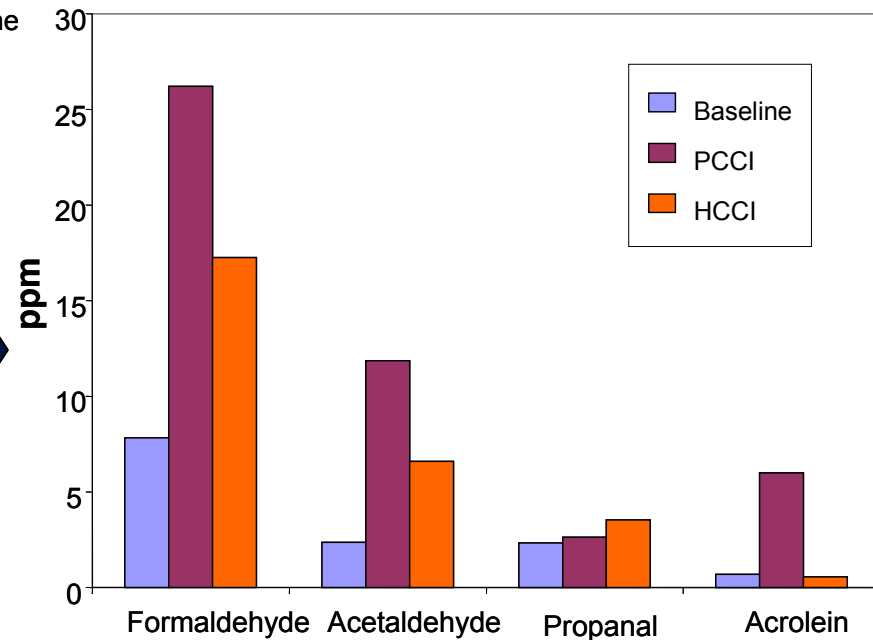


Cracking products, partially-oxygenateds dominate HC



Methane, ethene, propene increase during HCCI. Evidence of cracking products?

Aldehydes higher in PCCI; high levels of EGR may promote partial oxidation



- Acknowledgements:** This research was supported by DOE-OFCVT. We are grateful for Dr. James Eberhardt's and the Health Impacts Research Effort's support of this project.