MEASUREMENT AND CHARACTERIZATION OF NO_X ADSORBER REGENERATION AND DESULFATION

Shean Huff, Stuart Daw, John Storey, Brian West, Bill Partridge, Sam Lewis, Dean Edwards, Katey Lenox, and Jae-Soon Choi

Oak Ridge National Laboratory

ABSTRACT

Experiments at Oak Ridge National Laboratory are being conducted to characterize NO_x adsorber catalysts. Full-size samples are being evaluated on a diesel engine stand with full-pass control of electronic throttle and exhaust gas recirculation (EGR), wastegate, number and timing of fuel injection events, etc. Bench-scale work with powders, wafers, and small monolith cores is being conducted in parallel to the engine work.

The presentation will describe recent measurements of hydrogen and other species inside catalyst channels and in the bulk exhaust using spatially resolved, capillary-inlet mass spectrometry (SpaciMS). Gas chromatography is being used in conjunction with SpaciMS to fully characterize the exhaust hydrocarbons and other species that are formed in-cylinder for various regeneration strategies and the usage of various compounds through the oxidation and NO_x adsorber catalysts downstream.