

## **216f Co Containing Nox Storage and Reduction Catalysts Explored Via High-Throughput Experimentation**

*Jochen Lauterbach, Rohit Vijay, and Christopher Snively*

The improvement in fuel efficiency of a continuous lean burn automobile engine over a traditional stoichiometric engine could be as high as 20–30%. Extensive research has gone into finding catalysts that will reduce NO<sub>x</sub> under fuel lean conditions. NO<sub>x</sub> storage and reduction (NSR) catalysts have been developed to store NO<sub>x</sub> during fuel lean cycles and reduce the stored NO<sub>x</sub> during subsequent fuel rich cycles. We will report results on the effect of adding a variety of metals (Pt, Rh, Fe, Mn, and Co) on the performance of barium containing NSR catalysts using a high throughput experimental approach combined with statistical design of experiments (response surface design). We have also studied the effect of cyclic operating conditions, i.e., duration of the total cycle time and the fuel lean phase. Conclusions from these studies suggest that the cost of NSR catalysts can be reduced by replacing Pt with Co as the active oxidizing metal in NSR catalysts formulation.