Recent progress in automotive catalysts with less PGM loading

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时间：2019-12-18 下午 3:00-4:30

地点：工程楼A203会议室

报告简介：

The total demand for platinum group metals (PGMs), such as Pt, Pd and Rh, for automotive catalysts is growing due to increasing environmentally awareness. This lecture will introduce the development of highly active automotive catalysts with less PGM loading such as three-way catalysts with less Rh usage and diesel oxidation catalysts with less Pt loading. The keywords for both investigations are the "bimetallic" and "modification of support oxide". As for the three-way catalysts, the bimetallic Ir-Rh catalysts supported on CeO_2-ZrO_2 were developed. The formation of Ir-Rh nanoparticles composed of finely-divided Ir species on the surface of Rh particles with a size of 1 nm, leading to a decrease of 40% Rh usage, plays a key role. The catalytic performance of bimetallic PtPd diesel oxidation catalysts will also be introduced. Its catalytic performance was improved by controlling the surface acidity of Al_2O_3 support by introducing 2^{nd} elements.

报告人简介:

Dr. Masaaki Haneda is a professor in Advanced Ceramics Research Center, Nagoya Institute of Technology. He obtained his PhD degree in Toyohashi University of Technology in 1995. From 2001 to 2009 he is a senior research scientist and team leader of National Institute of Advanced Industrial Science and Technology (AIST), Japan. He joined Nagoya Institute of Technology in 2009 and he was a full professor in 2017. His research focus is the development of highly active catalysts for environmental protection, especially, automotive catalysts with less platinum group metals for gasoline and diesel engine vehicles. Prof. Haneda is a member of the Editorial Board for Applied Catalysis B. He has published about 150 peer-reviewed scientific publications. He received Nagai Prize in Science in 2017 due to his excellent research achievements.

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