Hydrothermally Stable, Sulfur-Tolerant Platinum-based Oxidation Catalysts via Surface Modification of SiO_2 with TiO_2 and ZrO_2

Poster Location P-12

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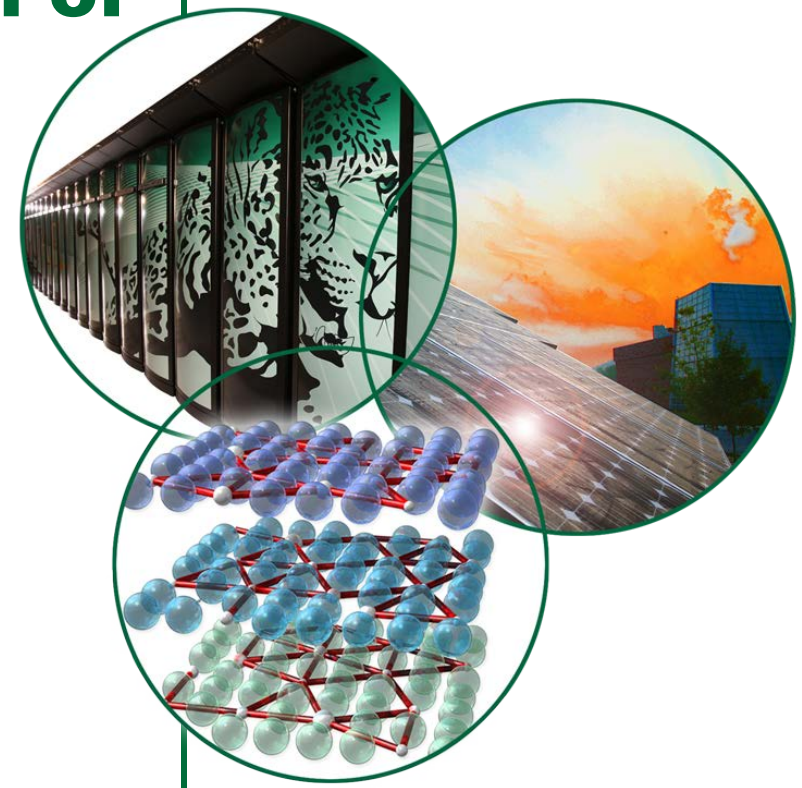

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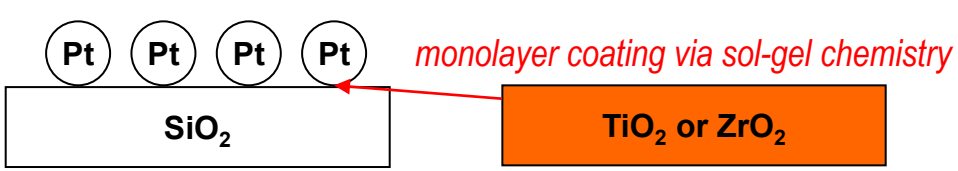
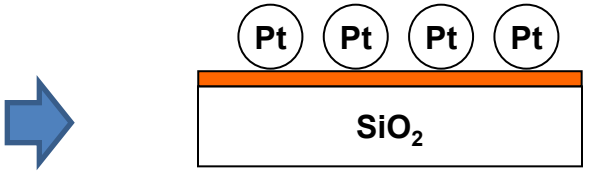
TiO_2 & ZrO_2 coating of SiO_2 can lead to Pt catalysts with enhanced performance

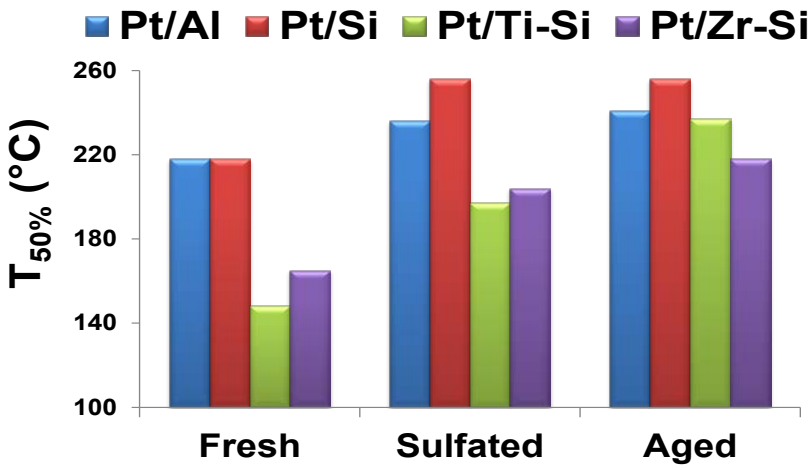




— Week interaction with Pt (-)
— Sulfur tolerant (+)
— Higher surface area (+)

— Strong interaction with Pt (+)
— Sulfur tolerant (+)
— Low surface area (-)

— Strong interaction with Pt (+)
— Sulfur tolerant (+)
— High surface area (+)



- TiO_2 and ZrO_2 coating enhances dispersion & redox capacity of Pt → excellent CO oxidation performance (lower light-off temp)
- TiO_2 and ZrO_2 coating generates surface acidity but low basicity → good sulfur tolerance
- TiO_2 and ZrO_2 coating enhances interaction between Pt & supports → excellent hydrothermal stability