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CO oxidation reactivity of Au/Pt nanostructures on Titanium oxide

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We studied CO oxidation reactivity for Au/Pt bimetallic nanostructures deposited on native TiO_2 formed on Ti foil. The catalysts were prepared by evaporation of Au and Pt on a flat titanium oxide film, and their surface structures were characterized by scanning electron microscopy (SEM). With increasing Pt coverage on Au-precovered TiO_2 surfaces, CO-oxidation reactivity gradually increased. When Au was evaporated on Pt-precovered surface, the CO-oxidation reactivity rapidly decreased. This result implies that the post-evaporated metal is mainly located on the shell of the particle. SEM studies show that the growth mode of Pt in TiO_2 is greatly modified by the presence of Au.