

Abstract Submitted
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Self organized growth of regular arrays of Pd-Au bimetallic nanoclusters on nanostructured alumina films CLAUDE R. HENRY, CRMCN-CNRS, Campus Luminy, 13288 Marseille, GUIDO HAMM, CRMCN-CNRS, CONRAD BECKER, IPTC, University of Bonn — Pd-Au clusters (1-4 nm) were grown under UHV on nanostructured alumina films in a two-step process. The alumina films, prepared by high temperature oxidation of a Ni₃Al (111) surface, present an hexagonal array of defects, separated by 4.1 nm, which is a template for the growth of the bimetallic clusters. Pd and Au atoms are condensed sequentially on the alumina film, under UHV. The maximum density of metal clusters is fixed by the density of defects. The mean size of the clusters is controlled by the total amount of the deposited metals, while their composition is controlled by the ratio of the deposited amounts of the two metals. The nucleation and growth of the bimetallic clusters are followed in situ by STM. These arrays of bimetallic clusters are used as model catalysts for CO oxidation studied by molecular beam methods. The regular spatial organisation of the clusters allows the study and the correction of the reverse spillover effect of the CO during the reaction.

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