General Physics Seminar
Rijnhuizen Seminar Room

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Alkene Oxidation on Metal Oxide Clusters: Model Systems for Active Centers

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In a simple approach, clusters can be treated as isolated active centers of a heterogeneous catalyst. Thus, metal oxide clusters are suitable systems for the modeling of active sites in heterogeneous oxidation reactions. By studying reactions of gas phase metal oxide clusters insights into details of adsorption processes, oxygen activation and oxygen transfer can be gained. As examples the strong cluster-size dependence of the reactivities of bismuth and vanadium oxide clusters towards hydrocarbons will be presented. For the Bi/O system the reasons for high reactivity as well as a sequential alkene oxidation mechanism including molecular oxygen activation will be discussed.